The Builder.

VOL. LXI No. 2528. SATURDAY, JULY 18, 1891

ILLUSTRATIONS.

Church of St. Michael, Stonebridge, Willesden.—Messrs. Goldie, Child, & Goldie, Architects ..... *Double-Page Photo-Litho.*
Design for Billiard-room, Brooklands, Weybridge.—Mr. Reginald T. Blomfield, Architect ..... *Single-Page Ink-Photo.*
St. Antonien Kapelle, Berne, as Re-built.—Mr. Reginald T. Blomfield, Architect ..... *Single-Page Ink-Photo.*
House, "The Croft," Stanstead-Montfichet.—Mr. W. D. Caröe, Architect ..... *Single-Page Photo-Litho.*
House, 11, Charles-street, Mayfair.—Messrs. Wimperis & Arber, Architects ..... *Single-Page Photo-Litho.*
Sculpture in the Royal Academy.... "Babyhood": Studies in Wax.—By Miss Emmeline Halse ..... *Single-Page Ink-Photo.*
Medallion, "Boy on Dolphin."—By Miss Ellen M. Rope
"Sibylla Fatidica."—By Mr. Henry A. Pegram ..... *Single-Page Ink-Photo.*

Blocks in Text.

Diagrams illustrating Article on the Classic Orders ..... Pages 40, 41

CONTENTS.

The Classic Orders 39
Notes 42
Some Attributes of Architecture 44
The Sydney Architectural Association 45
School Hygiene and Planning 47
Church of St. Michael, Willesden 48
Billiard-room, Brooklands, Weybridge 48
St. Antonien Kapelle, Berne 48
The Croft, Stanstead Montfichet 48
No 11, Charles-street, Mayfair 48
Sculpture at the Royal Academy 48
Archæological Societies 48
The Incorporated Association of Municipal and County Engineers: Annual Meeting 49
London County Council 50
Royal Academy: Admissions to the Architectural School 51
Main Road Management 51
Proposed House, Hampstead 51
The Student's Column: Marbles, III. Roman Marbles 51
General Building News 52
Sanitary and Engineering News 53
Foreign and Colonial 53
Miscellaneous 53
Legal 54
Capital and Labour 55
Meetings 55
Recent Patents 55
Some Recent Sales of Property 55
Prices Current of Materials 55
Tenders 55

The Classic Orders.

THERE is no more remarkable evidence of the superiority of the Greek mind, and the intellectual sway which its productions have exercised over the world, than the continued vitality of the Classic Orders in architecture. It may be said, of course, that the Orders, as generally recognised and figured in the books, are Roman and not Greek. Nearly everything that is good in them, however, is derived from Greek architecture; the Romans gave their own modifications to them, but in nearly every respect spoiled them in doing so. In their decoration of the so-called Corinthian Order (why so named we do not know and never shall know now) the Romans no doubt developed a richness and splendour which is impressive in its way, and in a way distinct from the impression produced by anything in Greek architecture; and they have perhaps more claim to this as a Roman Order than to any of the others except the Composite, which is in reality hardly a separate Order at all, only a variation (not very happy) in the design of the capital. In the case of the Doric and Ionic Orders the Romans simply spoiled them, taking two exquisitely refined Greek forms of design and altering the detail to suit their own coarser perceptions. The immense place and power occupied by Imperial Rome in antiquity, and the fact that her ruined temples and arches were the nearest and most important remains in the eyes of the Italian architects of the Renaissance, combined to give the Roman form of the Orders the predominance in modern Europe, until in the present century fuller attention was turned to the remains of pure Greek architecture. Since then every artist has recognised that the Greek forms, long superseded by the Roman corruption of them, are by far the finer, and that they are the real fountain-head of all that is best in the Classic type of architecture.

The Classic Order is in reality, if we come to think it out to its foundation, merely a system of designing a post and beam construction in such a manner as to impart to it artistic grace, expressiveness, and proportion. It is this latter element of proportion which really makes the Order; the *ordo*, the system of designing each detail in relation to all the rest. This it is which gives to the whole combination of column, architrave, frieze, and cornice its artistic unity and individuality. It is this considerate designing of all parts in relation to each other and to the whole which especially distinguishes cultured from barbaric architecture. In the latter we may find splendidly-picturesque effect which however, will not bear examination in detail. In the architecture of the Classic Orders not only do we find a general expression of grace and dignity, but an examination of parts in detail shows that every moulding and ornament has received special consideration in reference both to its own design and to its effect on the whole. This kind of excellence and finish may be realised of course, and has been, in designs in which no Order (in the conventional sense) was introduced at all. But this was the lesson which the Greek Orders left for the world; the lesson of designing all the parts in relation to the whole, and thus rendering the Order a complete work of art in itself. One result of this fastidious excellence in the Greek Order, however, has been that it has come to be accepted as a kind of representative means of architectural expression; not a mere architectural treatment of post and beam, but a form of treating walls where no post and beam construction existed or was called for. This is in fact as old as the best period of Greek architecture itself: the Greeks used the Order in this way on the exterior of the Erectheion, as a wall decoration, where there was no colonnade at all; and it is employed so, as far as design is concerned, in the monument of Lysicrates, though the columns are in fact complete in themselves here, and the intermediate wall is merely butted against them. But during and since the Italian Renaissance this use of the Orders as wall decorations has been a constant feature in architecture. They form a recognised means of giving architectural dignity to a building, and by long association this employment of them has acquired a respectability which leads people to forget how entirely contrary to true architectural principle it really is. Forty or fifty years ago, indeed, the leaders of the Gothic revival took up arms against the Orders, and thought and talked as if they had slain them. Yet here they are rising again, as active as ever at the present moment, and the Master of the Royal Academy Architectural School has found it worth while to bring out a new book for the use of students,* giving a selection of a few of the best typical examples of the Orders in a cheap form, in response, as he says in the preface, "to the constantly-increasing demand for such a publication."

The special reasons given in Mr. Spiers's preface for the production of this selection of drawings of the Orders are that the Council of the Royal Academy, in their new regulations for the admission of probationers and students, have required the production of drawings involving the setting out of the Classic Orders in their due and proper proportion; and that the Council of the Institute of Architects require drawings of a similar character for their "Intermediate Examination:" but that in addition to this the return within the last few years to what is called "Free Classic" suggests the advantage of putting before the student some of the purer Classical forms from which the architects of the Renaissance period derived their inspiration, together with a selection of their own compositions. The book is in fact a selection from the plates in Normand's "Parallels" and one or two in Mauch's "Architektonischen Ordnungen"; intended as an inexpensive collection of typical examples for the student. Normand, as Mr. Spiers observes, is a scarce book now, and Mauch he considers is "beyond the reach of the ordinary student." If this means financially, it should not be so; the unbound quarto edition of Mauch, printed on somewhat coarse and inferior paper, certainly cannot be called a publication *de luxe*, and ought to be sold at a reasonable price. The text, it is true, is untranslated, and all students do not read German. In any case however, Mr. Spiers's smaller collection is a

* The Orders of Architecture, Greek Roman and Italian: Selected from Normand's Parallels and other authorities, with three new plates, specially prepared for this work. Edited, with Notes, by R. Phené Spiers F.R.I.B.A., F.S.A., Master of the Architectural School of the Royal Academy. London; B. T. Bateford; 1890.

convenient and well got-up book, and will no doubt be very useful to students. We only regret that if something of the kind were found necessary, it was not made an opportunity for producing something more than a mere reproduction of existing plates, in regard to one or two points especially to be noted just now.

The Theseion is selected as the example of the Greek Doric Order. Why this was preferred to the more refined and in fact unique Order of the Parthenon, as an example, it is not easy to understand, but it is perhaps just as well, as it is possible that Normand's representation of this Order is more correct than that of the Parthenon, and even if not, it is better that an imperfect drawing of the Theseion Order should be reproduced and further circulated, than one of so famous and important a building as the Parthenon. We do not say that the details of the Theseion as given here are incorrect; we have not the data at hand for checking them; but considering the evidence we have of the numerous inaccuracies in the drawing of the Parthenon Order published by Normand and Mauch, we are of opinion that a considerable scepticism must be maintained about all existing published illustrations of the Greek Doric Order, and that it is high time that these Greek examples were measured and drawn over again in a more accurate and conscientious manner, before the originals are subject to further decay, or before they are "restored," which, in the present state of feeling about such monuments, we are every year expecting to hear of. If Mr. Spiers could have secured new and trustworthy measurements of the Theseion, instead of issuing a copy of an old plate, he would have added in a very notable manner to the value and importance of his new book. As it is we can only warn students that all existing published drawings of the Greek Doric Order must be taken *cum grano*, this among them. It may be correct, but the chances are against it. The refinements of Greek architecture were not appreciated or looked for at the time Normand's "Parallels" was issued, and draughtsmen missed the true form of mouldings merely because they expected to see, and therefore thought they saw, mouldings which they were accustomed to in the better-known Roman or Renaissance work. We do not say that this interferes with the practical value of the book to students for the express purpose named in the preface—that of getting up the required drawings for passing the Academy and the Institute tests; the drawings come from books which are recognised standards; but it is certainly time that better standards of illustration were set up, as to Greek Doric work at all events.

If it was too large an undertaking to have the Theseion re-surveyed for this students' publication (which of course might reasonably be urged), we may point out that the materials for a correct delineation of the Parthenon Order have been at hand for many years in Mr. Penrose's principles of "Athenian Architecture," where measured details are given sufficient for nearly a full restoration of the building, though the Order is not fully drawn out anywhere in the book, Mr. Penrose's object having been investigation and accurate record rather than illustration. In the course of a frequent reference to this remarkable monograph we have detected one or two draughtsman's errors, for which a reference to another plate would furnish the correction; but in the main, considering the nature and method of the measurements taken by Mr. Penrose, and his well-known attainments in mathematical accuracy of measurement and computation, it may be safely assumed that the sections and measurements given in his work are as accurate as any possible measurements that could be taken by human hands; and it would have been putting his work to a very practical use if his measurements had been made the basis of a plate of the Parthenon Order correcting the inaccuracies of all existing publications. We give on the opposite page an elevation of the Parthenon compiled in this way from Mr. Penrose's measurements and sections. The sculpture is purposely omitted, as the object is merely to get the architectural lines correctly; and the plans of the soffit of the cornice, and the plan of the column and abacus, are not given, but these are sufficiently correct in the books. But the elevation here given is we believe the first one ever published of the Parthenon Order which is fairly correct, and we may just point out some of the inaccuracies in Normand and his followers which are here corrected. In the first place every published drawing of the Order shows the crowning moulding of the raking cornice as a coarsely drawn hyperbolic or elliptic moulding returned back so as to leave a kind of quirk under the fillet, as shown at A, which is traced from Mauch's

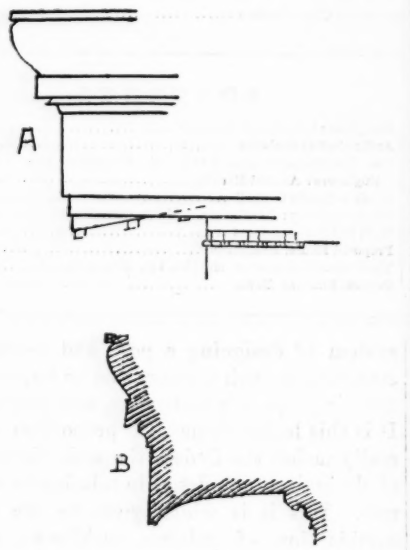


plate. No such moulding exists in that position, and this is just an instance of what we remarked on before, of that tendency to see what the eye expects to see. The former illustrators of the Parthenon knew approximately the shape of the echinus moulding of the capital (though none of them have drawn it right), and thought they saw the same moulding on the cornice. In reality it is a segment of a circle, the only moulding in the Parthenon which is so, with no quirk between it and the fillet. In Chambers's "Civil Architecture," or rather in Gwilt's supplement to it, the further mistake is made of showing this moulding as a part of the horizontal cornice of the Order, whereas it exists nowhere as a horizontal moulding except just in the bit forming the return of the coping at the base of the pediment. In Mauch's representation of the Parthenon Order there is a section given (B) which is apparently intended as the section through the whole raking cornice of the pediment. The real section is as shown on our plate, reproduced from Mr. Penrose's measured details as nearly as it can be on this small scale. This section is not given in Normand, but the section in his plate through the horizontal cornice is quite imaginary in form, and not the least like the reality.

In all representations the bead-and-reel ornament at the base of the cornice shows below the line of the *guttæ*. Seen in elevation it is really higher, and is cut through by the guttæ, as shown on our drawing. In Mauch and Normand the guttæ are shown as straight-lined pegs; they really widen towards the base. The guttæ on the cornice are always shown the same as those on the small brackets below the triglyphs. In reality the latter, though spaced the same as the cornice guttæ, are half as long again; a difference certainly not made by the Greek architect without a reason.

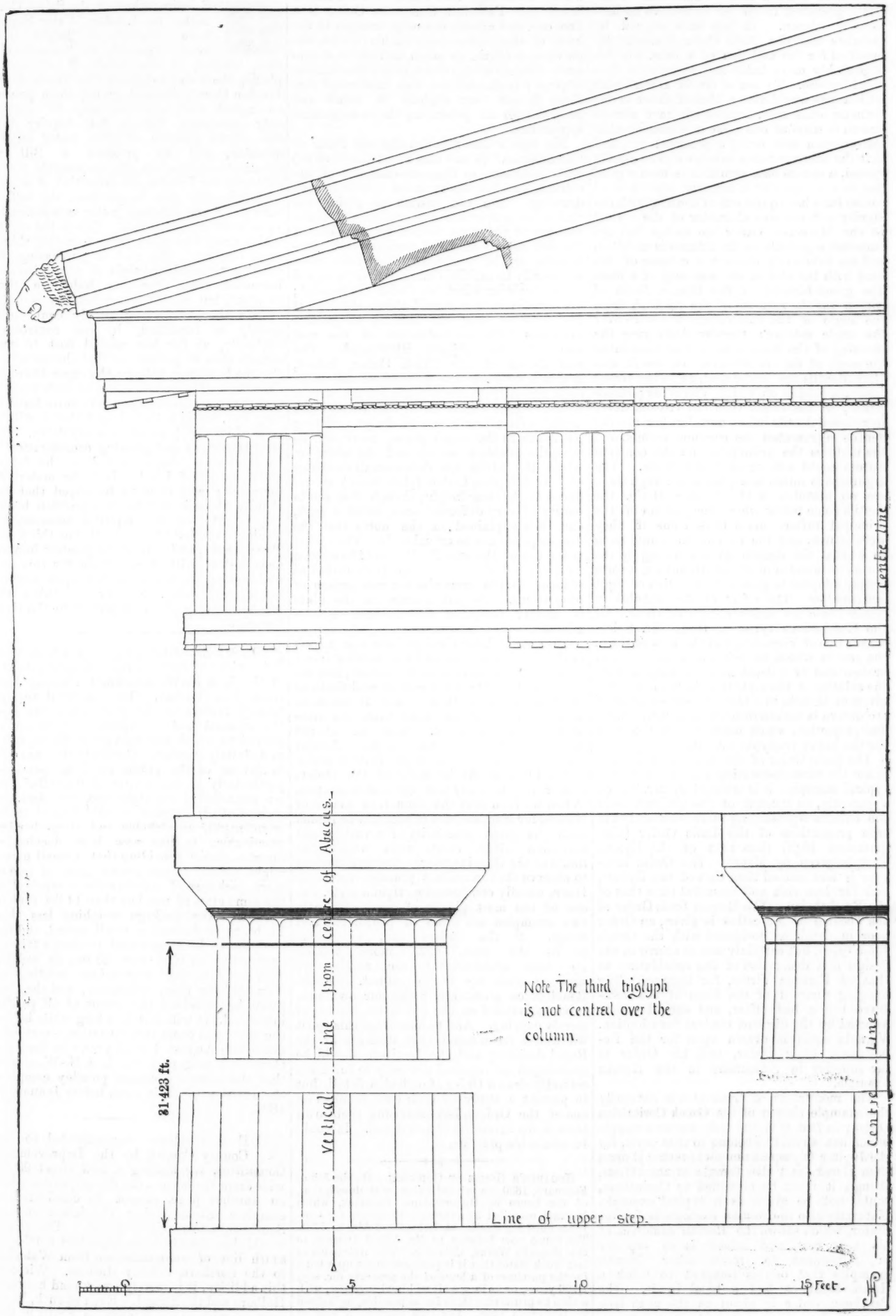
The backward slope of the line of the frieze and architrave is of course ignored in all the published representations. It is carefully set out in our drawing from Mr. Penrose's figures. The drawing was made to twice this scale and reduced, but even on this scale it is, as will be seen, quite visible to the eye. In connexion with this obvious practice with the Parthenon, it is curious to find Vitruvius laying down the rule that all members above the capitals of columns should be slightly inclined *forwards*, otherwise he says "they will appear to lean backwards" (Book III. chapter 3); whereas the Parthenon architect set them leaning backwards. On the other hand the face of the corona of the Parthenon cornice does actually lean forwards as prescribed by Vitruvius (though too slightly to be shown on this scale); and it is rather difficult to understand the principle on which these two opposite methods were employed in the same entablature. The angle triglyph also follows the backward slope with its inner line, leaving the metope space wider at the bottom than the top. This was obviously the only way in which the adjustment could well be made, as it would have looked very bad to make the lines of the triglyph channels radiate from the top; whereas when the metope space was occupied by its sculpture, which would chiefly attract the attention, the discrepancy in the lines of the sides would be overlooked. It may be observed that although theoretically the triglyphs, except the outer one, should be and were meant to be central over the columns, this balance has not been restored at the second column, the triglyph being considerably out of centre with it.

The extent of the backward slope of the axis of the columns, seen in elevation of course only in the angle column, is indicated by the vertical dotted line from the centre of the abacus. The rise of the curve of the upper step, which, in the length shown in the drawing, amounts to about ·11 of a foot,* is quite visible on this scale and is shown in the drawing. Strictly speaking, the lines of the entablature ought to rise slightly from the angle, but the curve is much less, and was better not attempted on this scale, where indeed it would be hardly visible. The line of the echinus has been put in as well as can be on so small a scale from Mr. Penrose's set-off measurements; if this be compared with Mauch's drawing, it will be seen that he has quite falsified the appearance of this member; on the scale of his plate the long shank of the curve would be indistinguishable from a straight line, whereas he shows it with a visible bulge, and the curve at the apex of the hyperbola is far too large and blunt. In the Theseion drawing and the reproduction of it in Mr. Spiers' plate, the echinus is better drawn. The Theseion cornice is given with the same kind of moulding incorrectly shown, as already observed, in the Parthenon drawing; it would be interesting to ascertain if it is correct in this case, and if it really exists as a horizontal moulding, as shown in the plate. We should have considerable doubt of it.

The foregoing observations will be sufficient to indicate (taking Mr. Penrose's measurements as correct, as we believe we safely may) how much need there is for revision of what are supposed to be the standard drawings of the Greek Doric order. Mistakes have been made by one illustrator and copied over and over again by others.

The existing drawings of the Roman Orders are probably more accurate than those of the Greek Doric, as the principal remains have been more accessible than those of Greece could be said to be until a comparatively recent period; and none of the published drawings of Orders are recent, except in the sense of being recent copies from other books. The example of the Roman Doric Order selected by Mr. Spiers in the book before us is that of the Theatre of Marcellus, which is perhaps one of the best examples of that very unsatisfactory and clumsy type of Order, every detail in which serves to remind one of the gulf which divided the Roman mind from the Greek in matters of artistic perception. The capital, with its heavy echinus on a section of the quadrant of a circle, and the three disproportionately large fillets under it, is like a common piece of turner's work in comparison with the refinements of the Parthenon capital. The Order is noticeable as being, if

* The measurements followed are those of the southern portion of the east front.



The Doric Order of the Parthenon, drawn out from the measurements and details given in Mr. Penrose's "Principles of Athenian Architecture."

we remember right, the only known Roman instance of a Doric Order which follows the Greek precedent in so far as to have no base to the column. It has been argued by theorists that the Doric Order is essentially unsuited for the addition of a base, but this is probably more habit and association than anything else. To see a Greek Doric Order with a base would give a kind of shock to our æsthetic sense now, because we have always known it without one; but it is probable that the omission was really a practical one, and that the columns being so large and so closely spaced, a square base would have been a good deal in the way, and a circular one would of course have been quite out of keeping with the dignity and massive character of the style.* In the Marcellus Order we rather feel the omission, especially as the column is unfluted, and we habitually connect a column of this kind with the idea of the necessity of a base. The great blunder of the Roman Doric of course was the removal of the triglyph from the angle of the entablature to centre over the angle column; thereby destroying the meaning of the feature as well as weakening the angle of the entablature. In the Roman Doric dentils are introduced, as in the Greek Ionic; a subject on which Vitruvius philosophises, to the effect that the Greeks never introduced dentils below mutules, because the dentils represented the common rafters, and the mutules the principals, and the common rafters could not come below these. The argument is rather lame, because though there are no mutules in the Roman Doric, the dentils come below where the position of the principal rafters must have come if they were shown, and the conclusion would seem to be that the dentils do not belong to the period of wooden origin at all, but are a form simply adopted to give a broken line of light and shadow. The effect of the mutules in Greek Doric no doubt suggested them. Of the Renaissance types of Doric Mr. Spiers selects one of Vignola's, and the best of them, the one in which he left the architrave unbroken and of a depth more in keeping with the solidity of the style than in the other one given in Mauch, in which the rather shallow architrave is broken into two planes by a fillet and projection, which makes it look too weak for the heavy triglyphs over it.

The Ionic Order of the Temple of Eleusis is not the most fascinating one to select as a typical example; it is selected by Mr. Spiers, apparently, on account of the proportions of the column representing more accurately the true proportions of the Ionic Order (nine diameters high) than that of the Ilyssus Temple given by Mauch. The Order however is less refined than that of the Ilyssus, and far less rich and beautiful than that of the Erechtheion. The Roman Ionic Order of the Theatre of Marcellus is given, an Order poor in detail as compared with the Greek Ionic types, but certainly not so coarse in the design and decoration of the entablature as that of Fortuna Virilis, for instance. The hanging forward of the faces of the architrave has a bad effect, and should not be selected by the discreet student for adoption. Vignola again is drawn upon for the Renaissance Ionic Order, and his Order is far superior in refinement to the Roman example.

The monument of Lysicrates is naturally the example chosen of the Greek Corinthian Order; in fact it is the only known example which can be said to belong to that style, for the Jupiter Olympius temple is rather Roman than Greek, and the Temple of the Winds, though it must be classified as Corinthian, could not be given as a typical example. Naturally also the Roman example is Jupiter Stator, which shows the Roman architect at his very best, and indeed is so superior in refinement to most other Roman examples that one is tempted to think a Greek architect had a hand in it. The Pantheon order is given as the next best example, but there is a wide step between the two, especially as regards the coarse and lumpy mouldings into which the architrave is cut up. Palladio's Composite Order is a fine one, and affords the only example in the book of that rather questionable feature, the pulvinated frieze, so much in fashion at present. One of the caryatides in the Erechtheion is given; it should have been mentioned that these figures vary slightly in detail and pose, though all presenting the same general appearance.

Mr. Spiers has retained the old form of "modulation" (if one may adopt the word so) with reference to the semi-diameter of the column, but has wisely added a scale to each drawing. The old fashion of giving the Orders in proportion only, without a scale, was one of the most foolish superstitions of the old classic school of architectural illustrators, as the treatment of details must necessarily be modified more or less in regard to the scale on which the Order is executed; and besides, it is a stupid thing, although it has been so long the fashion, to publish drawings with no indication of the real size of the objects illustrated. The real defect of the Greek Order, indeed, is that it does not take account, or not sufficient account, of scale in regard to the human figure, which ought to be in a sense the modulus for all architectural design. Having put scales to the detail plates, however, we are quite unable to understand the whim by which the editor has shown small drawings of four complete Orders (plate xviii.) all reduced to the same height, though they are in reality of very different sizes, *added a scale*, and then explained in the notes that the drawings are not to actual scale. Then what is the use of the scale? It should have been omitted, and the Orders merely described as reduced to the same size for comparison of proportions. To put a scale on the plate is merely tempting the student into a mistake.

We should have liked to have seen a book of this kind accompanied by something like a short æsthetic treatise on the Orders, and the merits or demerits of the various modifications of them made by Roman and Renaissance architects; something more than the mere brief notes furnished. And we should like to suggest that some further educational use, as well as further architectural use, might be made of the Orders than merely to study and reproduce examples. When we turn over the numerous plates of Mauch, for instance, one cannot but be struck with the great possibility for variety and invention which exists even within the limits of the Classic Order. And it is curious to observe that in ancient practice the Greek Doric, usually considered so rigid a style, was one of the most plastic of any. Scarcely two examples are alike in proportion and detail. If the Orders are, as seems to be the case, once more coming up into architectural use, surely we may as well try if we cannot, like the Renaissance architects, make our own new versions founded on the old forms, instead of merely copying. And to encourage this spirit we would recommend that students at the Royal Academy and the Institute should be encouraged or required not only to furnish a correctly-drawn Order of orthodox detail, but to present a study of their own founded on one of the Orders, but exercising their own taste in the invention of new detail. It would be admirable practice.

HOGARTH'S HOUSE AT CHISWICK.—On the 8th of February, 1890, we printed a view, with description, of the house in Hogarth-lane, Chiswick, which Hogarth occupied as a summer residence for some years until his death, at Leicester-fields, in 1764. The house now belongs to Mr. Alfred Dawson, of the Hogarth Works, Chiswick. The *Athenæum* of last week states that it is proposed to set up a trust for the purchase of a lease of the property for, say, 1,900 years, or as long as it will hold together, with a view to preserving it, as far as possible, as it stood in Hogarth's time. For this purpose a sum of about 500*l.* is needed. If that amount can be obtained, the trustees would let the house to a careful tenant, as caretaker, and free it from some buildings which have intruded on the south side.

* The proto-Doric columns at Beni Hassan have a base, so that there was a precedent for it, which the Greeks apparently deliberately rejected.

NOTES.

THE deliberations of the Select Committee on London Water Supply have resulted, as might have been expected, in recommendations tending to the result of ultimately placing the water supply in the hands of the London County Council, giving them powers to expend such sums as may be reasonably necessary for a full inquiry into the whole position of the water supply question, and to promote a Bill to constitute themselves the responsible water authority for London, on condition of undertaking in that case to purchase the undertakings of the existing water companies by agreement or arbitration. This is the end to which every one must have seen that things were tending. The cost of purchasing the existing undertakings must of course involve increased rates for an indefinite time to come, but on the other hand it is quite certain that the actual supply could ultimately be furnished, by one controlling authority, at far less annual cost to consumers than at present, so that the saving on the one hand may balance the expenditure on the other. The matter is one of such vast extent that one cannot expect it to move forward very fast, but it is to be hoped that it will be entered into with no unnecessary delay. The most important and pressing consideration is to determine whence and how the future water supply of London is to be materially increased; and it is to be hoped that the County Council will be in a position before long to enter on the enquiries necessary for coming to a definite determination on this point. Time presses, and it is of the greatest importance that a satisfactory scheme for this vast undertaking should be agreed upon with no unnecessary delay. So far, we think the whole tendency of the Report is in the right direction.

CONSIDERABLE progress has been made with the Railway Rates Inquiry, the end of the L. & N.-W. classification having been reached on Tuesday. One somewhat unsatisfactory feature of the proceedings has been the unusual and unexpected alteration of provisions which had been generally regarded as definitely decided. Certainly this has told in favour of the public on some points,—particularly in the matter of "smalls." As we remarked a fortnight ago, the decisions arrived at with regard to this class of traffic were entirely unworkable and altogether impracticable. It has now been decided to insert a clause providing that a small parcel might consist of one consignment of two or more packages of merchandise comprised in the same class of not less than 14 lbs. each in weight. Any package weighing less than 14 lbs. to be deemed a small parcel, and the company to be empowered to charge for any such parcel as if it were 28 lbs. in weight. This renders the regulations relating to "smalls" far more reasonable, and the alteration has received the assent of all parties interested. It will still be a long while before the new rates come into operation,—certainly not before August 1 next year,—in fact, the General Manager of the L. & N.-W. asserts that the company cannot possibly complete the revision of their rates before January 1, 1893.

THE new scheme recommended to the County Council by the Improvements Committee, for making a new street 90 ft. wide from Holborn to the Strand, as described on another page, cannot be considered a complete scheme unless the lower end of Southampton-row is widened. The street would then constitute an important north and south line of communication from Waterloo to the northern railway stations. Without this addition, it is merely a new road between Holborn and the Strand. Even as such, however, we wish to see it made, as it will be the first cut into a region which imperatively requires opening out, cleansing, and rebuilding, and the Southampton-row improvement

would be sure to follow afterwards, as its necessity would then be made practically apparent to every one. The removal of the "island" at the south-west corner of Tottenham-court-road is another alteration which could not have been long deferred, in consideration of the crowded traffic at that point, and that recommendation of the Committee we have no doubt will be carried out very shortly. The Strand and Holborn street is a more serious undertaking, in which a good many interests have to be considered, but we are disposed to support the recommendation of the Committee as one of the best which has been made, and as having the advantage of forming the main portion of a wide north and south route. Even apart from that, we should be disposed to say, cut a street through that neighbourhood on whatever line, rather than leave it as it is: and do it without delay.

AS we anticipated, the Hanover Chapel Bill has been accepted by the House of Commons, though by but a small majority. Mr. Picton has given notice to move that the Bill be sent to a Hybrid Committee, but we fear there is now little chance of preventing the destruction of the only piece of architecture in Regent-street. We do not plead for the retention as a place of worship of a church which has no congregation. But surely the building itself might be saved and devoted to some other purpose. In London the idea seems to be that there is nothing to be done with a church which has dropped out of use as a church, except to pull it down. In Paris they know better.

THE new number of the *Classical Review* (July, 1891, No. 7) is so rich in archæological interest that it is hard to make selection; but architects will be specially interested in the note by Mr. Cecil Smith (the first official account, we believe) of the capital of a column found last year in the excavations on the site of Salamis, in Cyprus, and presented to the British Museum by the Committee of the Cyprus Exploration Fund. "It is of white marble (diameter about 3 ft. 2 in.), supporting an abacus 5 in. thick, and about 2 ft. 3 in. square.... On each side is carved the fore-part of a crouching winged bull, projecting considerably; but there is no trace, as at Persepolis, of the bent fore-leg. We have here, as Mr. Smith points out, an instance of the mixture of Persian influence with a late Greek style, an instance paralleled by the gold pin from Cyprus now in the British Museum, where the crouching bulls are combined with the Corinthian type of capital. The inscription on the pin makes it probable that it is of Ptolemaic date, and this would agree with the conjectural date of the "Portico of Bulls" at Delos. The decoration of the other two sides of the capital afford additional material for conjecture as to the date,—on each is carved in low relief one of those curious composite figures which are found chiefly in Græco-Roman mural decoration, but occasionally also in the late Greek periods. The upper part is the figure of a woman, full face, with a polos or kaneon on her head, and supporting, Kanephoros-like the abacus with her uplifted arms,—her drapery arranged in stiff folds which spread out into actual acanthus leaves; two tendrils of acanthus take the place of legs,—the nearest parallel appears to be the decoration on the capital of a free quadrate shaft in the Propylæon to the precinct of the Temple of Athene Polias at Priene. Analogous instances have also been found at Didyma and at the Temple of Artemis Leucophryne in Magnesia, where the figure has been identified as that of the goddess herself. The Temples at Priene, Didyma, and Magnesia all probably date between 300-250 B.C., but Mr. Smith leaves the final solution of the question to its impending publication in the Hellenic Journal by the excavators. He conjectures, however, that the capital belonged to a single column, used to support some such object as a laver.

FROM Berlin we learn that the architectural portion of the great work on the Olympian excavations will very shortly be issued. It is to appear in two volumes, each containing seventy plates. The first volume comprises twenty-five buildings,—*i.e.* the temples, the treasure-houses, gates, official residences, stone stadion, the priests' dwelling, the Heroon, the Byzantine churches, and the Leonidaion. This volume is just through the press, though not yet published. The second volume will comprise the gymnasium with the palæstra, the Philippeion, the Exedra, one of the baths, the mosaics, polychromy, architectural fragments, Doric and Ionic architectural details, numerous terra-cottas and tiles, the water-courses and wells, bases of statues, &c., and altars. In addition there will be eight large-sized reconstructions which are intended to give from various points of view an idea of the Altis at the time that Pausanias saw it. It is needless to dwell on the unique interest and importance of this publication. At Olympia we have specimens of certain styles of buildings otherwise known to us only through literary description,—*e.g.* the treasure-houses, the Bouleuteron, — the gymnasium. In the history of architecture, as a monument of the transition between the mixed wood and clay and the stone structure, the Heraion stands alone. Nowhere else but at Olympia can the water-course system of the Greeks be at all adequately studied, and finally the Olympic stadium has settled the question of the length of the Olympian foot.

MR. DUNSCOMBE, who left England in May to examine and report on the drainage of Cape Town, made his report last month, and the substance of it is given by the *Cape Times* weekly edition of June 24. Mr. Dunscombe considers that Cape Town ought to be a healthy city in view of its natural advantages, if the drainage were put in a proper state. He recommends in the first instance the abandonment of the "tub" system and the introduction of water-closets, and submits two schemes for disposal of the drainage, one an outfall scheme at an initial expenditure of 118,889*l.* and an annual cost of 6,104*l.*; the other a broad irrigation scheme at an initial expenditure of 143,000*l.* and an annual cost of 8,986*l.* The outfall scheme is complicated by considerations as to currents and possible return of the sewage. The engineer recommends that careful observation of the currents and tidal influences as likely to affect a sea outfall should be made over a period of twelve months. The *Cape Times*, in a cleverly-written leader on the subject, expresses the fear that in presenting them with two alternatives, Mr. Dunscombe has only paved the way for a conflict of parties, in the midst of which, perhaps, both schemes will fall through. Both this paper and the *Cape Argus* also comment on the fact that Mr. Pritchard, of Birmingham, made an examination of the site and drew out nearly similar recommendations some time ago, and that it is rather hard on him to be shut out only to see his own advice given over again by a second expert. Of course (as the Cape papers also do not fail to remark) the coincidence of opinion of the two engineers is satisfactory as an indication that they are on the right road about their drainage. Cape Town is so much in the high-way of English travel that its sanitary condition is a matter of some importance to us as well as to the residents.

NEARLY two years ago* we referred to the home of the Macaulays in Great Ormond-street. That house, formerly No. 50, and now the eastern wing of the London Homœopathic Hospital, will give way to the new hospital to be designed, as we announced last week, by Mr. William A. Pite, architect. The estimated cost, 30,000*l.*, is, we understand, subscribed. A portion of it appears in an illustration we published, on February 1 last year, of Mr. Charles Barry's new Jubilee wing for the Children's Hospital (E. Barry, R.A., architect), in Powis-place. That wing takes the site of two houses, pulled down in May, 1882, and then numbered 48 and 49. No. 49, its design attributed to James Gibbs, was inhabited by the celebrated Dr. Mead. He there succeeded Dr. Stukeley, Rector of St. George-the-Martyr, Holborn, who dates thence (1724) his "Itinerarium Curiosum." In the basement was a leaden cistern, with panel and strap ornamentation and date "1707." It was afterwards the residence of Sharon Turner, the historian, who died in Red Lion-square in 1847. The portico of No. 48, having two fluted Corinthian columns, entablature, and curved pediment (another one, in this street, is illustrated in our columns of February 11, 1854) was bought for the South Kensington Museum; and a ceiling, for 50 guineas. The staircases and interior fittings of these two houses were very fine: genuine early eighteenth century workmanship. Powis-place, where John Leech once lived, commemorates a mansion built by William Herbert, second Marquess of Powis, outlawed for adherence to King James II. It was destroyed by fire on June 26, 1713, being then occupied by the Duc d'Aumont, Ambassador from France; and, as some say, to cover the escape of the Chevalier de St. George, whose presence in London was suspected. This house was rebuilt, *teste* Pennant, at Louis XIV.'s voluntary expense. In 1773, as Noorthouck tells us, it formed the Spanish Ambassador's; it is said to have been also tenanted for many years by Philip, Lord Hardwicke, Lord Chancellor. Giacomo Amiconi, from Venice, painted the staircase. According to the two prints by H. Terasson (1714) and J. Harris (1727), the later house had a large courtyard, and an elevation of three stories, with fluted pilasters to the first and second stories, and a balustrade above. Pennant also says it was built of brick, and that a large reservoir on the roof, set up as a guard against fire, served also as a fish-pond. Powis House was pulled down in or about the year 1777. The old Nos. 50-1-2 have been re-fronted with a rustic base, a central order of four fluted pilasters and pediment, and a balustrade, so that they are sometimes taken for Powis House. The present No. 50 is the SS. John of Jerusalem and Elizabeth Hospital, whose church, shown in our view of February 1, 1890, was designed by the late George Goldie, architect. Next east of the church is No. 48, Convent of Mercy.

* The *Builder*, August 24, 1889: "Notes."

IT is mentioned in the last number of *L'Architecture* that the former pupils of the late Jules André, who formed themselves in 1883 into an association in memory of their master, and as a bond of union among themselves, have just published for the first time an *annuaire* of their Association, with a medallion portrait of André as a frontispiece. M. Marcel Lambert is the President of this little friendly Association, which includes a good many talented members of the present generation of French architects, who owed their instruction to André.

THE *Semaine des Constructeurs* comments on the mode adopted recently by the Paris authorities of marking out the former limits of ancient buildings which have been removed, by variously-coloured paving or by lines in the asphalte paving, and observes that this method, which is troublesome and costly to carry out, is also unsatisfactory in a practical sense, as the indications become to some extent obliterated by traffic, and are often liable to be entirely lost in the course of new buildings or street alterations. The *Semaine* suggests the placing of permanent plans to a small scale on the walls of the remaining portion of an ancient building, showing its former plan and its relation to adjacent buildings

AT the Nottingham Art Museum a valuable and interesting collection of antiquities, discovered during excavations undertaken by Sir John Savile Lumley, G.C.B. (now Lord Savile), formerly English Ambassador at Rome, on the north shore of Lake Nemi, was formally opened by the Mayor of Nottingham, on Wednesday last. The collection is placed in one of the large rooms on the ground floor of the museum, and consists of votive offerings in terra-cotta, personal ornaments, domestic and sacrificial utensils, architectural details and decorations, sculptures, inscriptions and coins, all from the site of the temple of Diana Nemorensis (the Artemisim described by Strabo), discovered by Sir John Savile Lumley in 1885-86. The extensive series of objects bear almost entirely upon the worship of Diana at Nemi, and show also that the officers of the Temple were presided over by priestesses. The series of terra-cottas are rich and instructive, and the sculptures in marble are of a high order; one piece especially, a portrait of a Roman lady, is remarkable for its fine style. Mr. G. H. Wallis, F.S.A., the director of the museum, has classified, arranged, and described the various objects, and has compiled a useful catalogue with notes, to which Lord Savile has contributed a very interesting account of the discovery of the Temple.

A USEFUL and interesting case is reported in the current number of the "Law Reports," —namely, that of Joyner *v.* Weeks. It settles once for all the proper measure of damages when a covenant by a lessee is broken by his not leaving premises at the end of a lease in repair. The gist of the case appears from the following extract from the judgment of Lord Esher in the Court of Appeal:—"The rule is that . . . the lessee must pay what the lessor proves to be a reasonable and proper amount for putting the premises into the state of repair in which they ought to have been left." This is in truth an absolute rule. In the case in question the lessor had, during the term of the lease, agreed to let the premises to a third person on the expiration of the term, who was to alter and pull them down. It was accordingly, with reason, argued before the official referee that, as the lessor had sustained no damage in fact, he ought not to recover any from the lessee. The referee, therefore, only gave one farthing damages. The Divisional Court practically upheld this ruling. The Court of Appeal reversed this decision. No doubt the rule laid down by it may save trouble. But it is not right that a lessor should put money in this way into his pocket. The rule should be that such damages are not payable if the lessee can prove that under the circumstances the lessor had not sustained any damage in fact. However, the rule is absolute, and, unless the Legislature in the House of Lords alter it, it must be taken as the law of the land.

ARTISTS should look at the paper by Mr. Norman Lockyer in *Nature* of July 9, in which he has given the scientific reasons for various colours and effects in Nature. He gives the numbers of some pictures in the Academy which indicate truthful observation of Nature. For clouds, good colour, No. 351 ("Evening," by Mr. Peter Graham); good form, Nos. 288 and 600 (Mr. H. W. B. Davis and Mr. Brett); good colour and form, No. 238 (Mr. Peter Graham); for water, good colour, Nos. 630 and 1,029 (Mr. Colin Hunter and Mr. Brett); good surface, Nos. 682 (Mr. Allan J. Hook), 759 (Mr. Hamilton Macullum), and 1,013 (Mr. J. Windass). Critics may be amused or irritated, according to temperament, to observe that neither Mr. H. Moore nor Mr. J. C. Hook come in for any share of praise in regard to sea-painting; but perhaps the selections are not intended to be exhaustive.

THE SANITARY INSTITUTE.—H.R.H. the Duchess of Albany has expressed her intention of being present on Saturday, July 25, at 3 p.m., to present the certificates awarded to ladies in a course of lectures on domestic hygiene.

SOME ATTRIBUTES OF ARCHITECTURE.

[FROM A CORRESPONDENT.]

IT is surprising how much the middle classes of England delight in columnar architecture. It appeals to them by its grandeur, its dignity, its appearance of everlasting stability. Not once nor twice, but a score of times have I heard the palm given to the Town-hall of Leeds in preference to the Manchester one. Something must be allowed to the site of the former,—a square of moderate ascent, the Town-hall occupying the highest side in a manner similar to the National Gallery in Trafalgar-square. But the site does not account for all. There is something in Cuthbert Brodrick's building itself which appeals to the average mind. The mass or grouping can have little to do with its supposed superiority over Mr. Waterhouse's elaborate pile in Albert-square, for in both a central tower dominates the principal front, but the simplicity of its parts as opposed to the multiplicity of parts in the latter building may have something to do with it, for the average mind cannot receive and assimilate much at once. Certainly there is a something which leads a great many people,—call them inartistic and uncritical, if you will,—to praise it, and which makes Leeds people mightily proud of it.

The massive columns are satisfying to the popular mind; the heavy, overhanging cornices have an element of wonder in them; the imposing flight of steps,—ah! what can equal a long, broad flight of steps? Surely nothing save a similar flight of steps flanked by great pedestals bearing huge "British" lions! So it is at Leeds. And, when having passed the crouching kings of beasts and ascended the palatial stairs, the average Englishman stands within the lofty portico, the building awes him by its greatness (and there is a pleasurable sensation in such mild awe). He stands against one of the great columns, and compares himself with its bulk; he feels his insignificance and ephemeralness, and the grandeur and durability of the building loom through his misty mind. He enters the great doors with a feeling almost of solemnity.

Surely there must be a certain amount of rightness in all this popular feeling. Grandeur and dignity and solemnity, and an appearance of strength and durability, are attributes of noble architecture. There are other attributes, of course, but for the present I am content to mention these, and one other,—simplicity. Need I instance the majesty of the pillared halls of Karnak, or the simple dignity of Greek temples? Have we not all felt,—I speak without having seen the building,—that the Erectheum loses something by the peculiarity of its plan? It gains picturesqueness, we are told, but is not the quality that it loses more worthy than the quality which it gains?

The Romans, too, in most of their buildings obtained dignified effects. The simple outlines of their amphitheatres, their lofty walls and repeated parts, strike all beholders with a sense of majesty. Their temples have much the same effect as those of the artistic race they conquered, and, in fact, differ from them chiefly in detail, save only their circular temples, which differ in plan and which we usually place to the credit of Roman invention, although probably the idea was borrowed from Greek work, such as the monument of Lysicrates at Athens; these, too, are dignified. The interiors of the great halls of their baths are examples also of imposing effect; but, as far as can be judged, the complexity of plan and multiplicity of parts of these baths produced exteriors lacking in great measure in the attributes I have named.

A similar result is seen at Sta. Sophia, Constantinople; the exterior, with its minarets, its dome and half domes, its inequalities of height and apparent irregularity, fails to impress the beholder as such a large building ought to do, but the interior, dominated by the central space with its wonderful vault, has dignity, solemnity, awe.

Who has not felt something of these feelings on entering one of our greater cathedrals? People talk with bated breath in these, not wholly because of the sacred associations of the place, but,—and I think chiefly,—because of the impressiveness of the building itself. We do not shout and laugh in the presence of nobility and majesty. I shall never forget the feeling of awe which I experienced on entering Durham Cathedral for the first time.

Much Renaissance architecture has the same attributes. The Italian works which we most admire are not the elaborate picturesque buildings of the later schools, but the early work of Cronaca and Michelozzo, Bramante and Raphael, whose buildings are characterised by simplicity of outline and by quiet dignity.

So, too, in modern work. Average persons prefer the Houses of Parliament before the Law Courts. The latter is broken up, detached, difficult to see as a whole, lacking in grandeur, simplicity, dignity, but the former is broadly massed, looks the one building that it is, and not a cluster of buildings, and so satisfies by its imposing appearance.

With how different eyes an architect looks on modern buildings!—the Houses of Parliament and the Law Courts, the Leeds and the Manchester Town-halls. He looks at details, and traces in every piquant bit the loving hand of the designer; he takes note of variations, and rejoices in the wealth of fancy which abounds. Ah! here is something new, fresh, quaint; here a difficulty beautifully overcome! The architect delights in the novelty of his brother's work, and praises his cleverness. He dislikes the repetition of features, and scorns the forests of columns and the interminable cornices; they are to him so much copy-book stuff; they are without novelty, cleverness, originality. He is well content to lose dignity and grandeur, if haply he may find "pretty bits." Our very manner of drawing exhibits this failing.

The other day, in company with a gifted musician, I was looking through a portfolio of plates from the various building papers. He is a foreigner, and ran out in high commendation of the buildings of Berlin and other continental towns, comparing them with our English public edifices, which, while apparently costly enough, were yet, in his opinion not half as fine as their continental contemporaries. I saw at once his predilection, and soon pleased him with the sight of a German building decorated with columns and cornices. There! he said. Yes,—I replied,—so much a yard; every architect's pupil draws them in his first year; look at these windows,—every one copied, see! from this palace at Florence; columns and cornices! Yes, very fine, but not a spark of originality. Ah! he made answer, laughing,—columns and,—what do you call them?—columns and cornices; we have just the same thing in music.

But although he knew it not, there was reason for his preference. I might scorn the columns and cornices as much as I liked, but the fact remained that the building which they adorned, was simple and dignified. That it lacked originality was manifest, but its designer had evidently a feeling for something more than mere picturesqueness, and used columns and cornices as the least difficult means of attaining the effect he desired. Had he been a genius, he would have imparted the same character to his building by perhaps quite other means, as witness Mr. Norman Shaw's simple and dignified police offices on the Embankment; not being a genius, however, but merely an ordinary architect who had nevertheless an idea of some of the essential attributes of noble architecture, he did what he could with well-known features and produced a building, academic if you will, but still possessed of a certain stateliness well befitting a public edifice.

I think that we English architects lay too much stress on originality, quaintness, and that pernicious quality, picturesqueness. The ancient builders did not deliberately set themselves to build picturesquely, as we do now. Our cathedrals were, almost invariably, originally of simple plan and dignified appearance, not complex but easily grasped as a whole; the picturesqueness is a growth like the lichens on the stones, and not a carefully-designed attribute. A chapel here, a porch there, a lady-chapel and presbytery, turrets, and pinnacles, and many additional monastic buildings,—all these, rising through centuries, have given the whole that quaint irregularity, which architects seem fain to imagine sprang mature from the brain of some old monk, like Cadmus's harvest of men leaping full-armed from their mother-earth.

Are we not false to our great art, when we prefer picturesqueness before dignity, and quaintness before grandeur, complexity before simplicity, and originality before perfection? These inferior qualities are apposite to many buildings. Much, for instance, can be said in favour of broken outlines and varied details for narrow strips of street-frontages, for each of

such buildings, erected as they are at different times and for different purposes, must depend for its chief effect on variety of parts, for it does not admit of breadth and grandeur of treatment. Such buildings also lose to a great extent the play of light and shade which so eminently heightens the effect of detached buildings, and must trust to the effect of details as they cannot have the effect of mass. How dignified, however, a row of shops can be made if built at one time or from one design, may be seen in the long crescent of shops in Regent-street, which strikes a great many people as one of the finest of London streets. To an architect the long range of building is dull and monotonous, but even he must acknowledge that it presents a certain dignity of appearance, which is quite a relief after the miles of fussy, quaint, original, bizarre buildings which occupy most of our streets both London and provincial.

Our houses and smaller buildings, especially those in the country, may also appropriately be of a less dignified character, partaking rather of the freedom and delights of home than of the dignities of state. But in our town-halls, large libraries, art-galleries, and other public institutions, it seems to me that we might with advantage strive to attain grandeur, dignity, simplicity, strength, rather than strain our powers to produce the quaint, the novel, and the picturesque. Public edifices ought to have a certain stateliness, correspondent with the power which resides in the large body of men by whom and for whom they are built.

Columns and cornices afford perhaps the easiest means of attaining the qualities I am advocating, but they are too hackneyed to find favour in our present English spirit. They are not, however, the only method by which these qualities can be gained. In nearly every style of architecture the world has seen, buildings have been erected which have these noble attributes. If we can get into the spirit of the designers of this old work, we can give to our own buildings their worthy qualities: we shall not try to galvanise into a semblance of life any of the bye-gone styles; they are obselete. Each style is but the mannerism of an age. "The artist who is to produce a work which is to be admired, not by his friends or his townspeople or his contemporaries, but by all men, and which is to be more beautiful to the eye in proportion to its culture, must disindividualise himself, and be a man of no party, and no manner, and no age, but one through whom the soul of all men circulates, as the common air through his lungs."

He must not strive after originality; that is vicious. But he must aim at the highest qualities, and his work will claim attention; it will be old, yet ever new. "We aim to hinder our individuality from acting. So much as we can shove aside our egotism, our prejudice and will, and bring the omniscience of reason upon the subject before us, so perfect is the work."

To-day we have set up a false ideal of architecture, and strive after qualities less noble than we might attain. I think it will be better for us to restrain our exuberant fancies, to check our cleverness, to repress our too-assertive individuality, and try to give to our great buildings something of the simple dignity and serene beauty which the great architects of the past seem chiefly to have striven to attain.

G. L. S.

THE SYDNEY ARCHITECTURAL ASSOCIATION.

As we have mentioned, an architectural association has been formed in Sydney on the same lines as the Architectural Association of England. Mr. Seager Hunt is the President, and delivered in April last his opening address, of which we have received a copy in pamphlet form. The latter portion of the address, which deals with architectural education from the Australian point of view, is as follows:—

"To the minds of several the distance between us and the beautiful creations of the past presents an insuperable barrier to the advance of our art towards the same standard of excellence maintained around them.

It has been said that it is impossible for Australian architects to produce satisfactory works, because they have not the same advantages for travel and study of existing buildings possessed by the architects at home. Now, were this true our Association would be starting at a considerable disadvantage, for we should have to recognise the fact that the students of architecture here, whatever their skill and industry, would be unable to reach our ideal standard. But it is not true. It is not simply a knowledge of actual existing works which produces good architecture; it is the thorough knowledge of the principles which govern them, and earnest efforts to learn how they may be applied. From want of this knowledge buildings without any claim to be considered works of art are erected all the world over beside the most perfect examples of architecture, as well as in lands far distant from them. Whatever may have been in the early days of settlement, the principles of our art can now be studied here as well as elsewhere.

This statement is so contrary to the prevailing opinion as I have heard it expressed, that I trust you will suspend your judgment and bear with me while I briefly lay before you the considerations which have led me to this conclusion.

For you will at once see that if my view be correct it carries with it the important one that travelling studentships are not now esssential to perfection in our art. That they were necessary to success from the time when art ceased to be a living expression of the thoughts and feelings of those who practised it till within only a few years ago, I at once admit, but the conditions then existing were far different from those which exist to-day. After Henry VII.'s and King's College Chapels, those magnificent cenotaphs of Gothic art, had been erected, and the glories of the art lost in a blaze of ingenuity and technical skill, there succeeded the period of the Renaissance,—the new birth of classic methods of work. Commencing in Italy, it soon spread to England by means of the Italian artists who were invited to come over. Their works at once took the popular fancy and became a wide-spread fashion, and to meet the demands made, the English architects of the day were compelled to travel to Italy to gain the necessary knowledge.

Inigo Jones was the first of note to return, in the reign of James I. Following close upon him was Sir Christopher Wren, and for nearly 100 years they and their disciples made known by their drawings and their works all the details of Italian art. Engravings were made and books published, the best known being Sir William Chambers's "Treatise on the Decorative Part of Civil Architecture." In 1762, Stuart and Revett, who had extended their travels as far as Greece, published their magnificent work on "The Antiquities of Athens," which created a revolution in public taste, and before the close of the century the fashion was completely changed, and it became as necessary to success to travel to Greece for inspiration as it had before been to Italy. These two classical styles held sway during the Georgian period and well into the present century, when another change of feeling began to be manifested in favour of Gothic art, and to this the architect's attention had then to be directed, in a half-hearted way at first, but with wonderful energy. When in the forties Augustus Welby Pugin published his "True Principles of Gothic Architecture," which sounded as a trumpet-blast through the land, gathering to his side a band of earnest workers, who travelled the length and breadth of England measuring and carefully drawing every one of the hitherto neglected cathedrals and other works of Gothic art. Thus, in addition to Pugin's own works, we have Britton's magnificent work on "The Antiquities of Great Britain," Sharpe's "Parallels of Gothic Art," and a host of other works, the result of travel in all directions in France, Germany, and later on in Spain. Then came "The Battle of the Styles," one party, headed by Pugin, contending that Gothic was the only style to adopt, others with equal force fighting for Classic. While this war was raging and the disciples of the contending parties were gathering more complete knowlege of the styles they favoured, numberless independent workers, — English, German, and French,—spread themselves over the whole of the civilised world, made drawings, wrote descriptions and prepared most exhaustive monographs of every style that ancient peoples had worked in,—Chaldean, Assyrian, Persian, Egyptian, Grecian, Roman, Romanesque and Byzantine, Indian, Chinese, Japanese, and Moresque, every phase of every style, all carefully measured, drawn, and fully described. Following these workers came the philosophers. Fergusson, Ruskin, M. Viollet-le-Duc, and Rickman, among numbers of others who, from the mass of information accumulated, arranged a clear history of the styles and an analysis of their principles, which alone can guide us in the founding of a National School Art. Then, during the last twenty years, photography has reached perfection, and reproductive processes have been invented beyond number; by means of these the professional journals have been able week by week to supply us with reproductions of the sketches and measured drawings of ancient example prepared by the numberless talented students who have sought from time to time for fresh fields of labour, so that we now possess a vast pile of information about every work of note which the ancient artists produced. Not only so, but our journals also publish side by side with ancient examples, representations of the works of our best modern architects. Every work of importance, and some of but little importance, are represented, not only pictorially, but there structural parts are often fully shown; plans, sections, details, and descriptions convey to us in the clearest possible way a complete knowledge of the use that is now being made of ancient art and the developments springing from it.

Thus do we become the inheritors of the accumulated wisdom of the ages, and it is our duty to-day to strive diligently in order that we may become the worthy guardians of this valuable trust.

Do not mistake me. I will yield to none in my appreciation of the delights of travel among the marvellous creations which thrill us by their intrinsic beauty, and by the historic association surrounding every part of them. To have stood within one of our noble cathedrals where all the arts combine to convey us far beyond all thoughts of corporeal needs, is to have experienced an intensity of feeling so deep that it vibrates within us so long as memory serves. It is a pleasure varying in degree with the poetry of art the work possesses; and, having enjoyed it, I should be wanting in sympathy, indeed, did I not hope that as many as possible of our students may enjoy it too. All I insist on is,—and I think in this you will agree with me,—that it is not an essential factor in our education. It is knowledge we require, and to gain this it is essential that as many as possible of the published works on architecture and the kindred arts should be available for us.

Of all the fine arts, architecture is the one which most largely affects the interests of the people. By its architecture a city is made or marred, and it is not too much to hope that the Government will, on representation being made to it, add to its excellent reference library a thoroughly comprehensive collection of architectural works, and give to all students of architecture special facilities for making use of them. Our own library,—at present consisting of one book,—must be well stocked with the professional journals which are, without doubt, the most powerful art educators of the day, and as such should be most warmly encouraged and supported by all taking interest in the progress of art.

And here let me express the thoughts I have about our attitude towards our own journals published in Sydney. That they are not, nor can they be, of the high standard of excellence maintained by those published in England and America, to which the first architects of the day most willingly contribute, of course, goes without saying. The standard they are able to reach depends very largely indeed upon the work of the architects here, for they are,—or should be,—a reflex of the progress our art has made among us. Often they do not fairly represent the progress, for while good works are erected which are not published, works at times utterly devoid of merit are, and the educational value of the journals considerably lowered. We may, I think, safely rest assured that meritless designs would never be represented except as records of fairly important buildings erected if good designs and skilful drawings were at all times available, and it reflects upon every architect who is able to contribute better illustrations if the inferior ones still find a place. Any architect who is erecting an important work will, I hope, be ready to make,—in the cause of architectural education, — the small sacrifice required to prepare illustrations of it for reproduction.

The Government have not set a good example in this, for while they erect, I suppose, nearly as many works as the whole of the profession in Sydney, it is seldom indeed that a drawing of them is published. I trust the present Government architect,—whom we are glad to

number among our members,—and all other architects, will assist us by helping the editors to raise our journals to the highest standard here attainable. However able the editors, however anxious they may be to raise their standard, they are powerless without the hearty co-operation of us all. Both have expressed their desire to help us in the work we are entering upon; and the help they afford us is valuable indeed, for they provide us with a ready means of communication between ourselves and our friends in this and other colonies, and will form valuable additions to our library.

We must also obtain the many text books on all subjects connected with our work, and these will together form a lending library, of which the whole number of our members will be able to avail themselves.

All those who have interest in our art may render us most valuable service by contributing towards this part of our work, and I would most earnestly appeal to all such to help us either by donations of books or by becoming honorary members of our Association.

I have said that we do not provide in our rules for any set course of instruction, but to reach our ideal a large amount of instruction is absolutely necessary, and all this can be obtained in the Institutions already founded by the University and the Government. The University provides for the teaching of all the sciences required by the architect, except sanitary science. It also provides for the teaching of the history of architecture and building construction by courses of lectures similar to those given at University College, London, and I would strongly advise all entering the profession to attend them. If the curriculum leading to the degree of Bachelor of Architecture, now under the consideration of the Senate, is established,—and I most sincerely hope it will be,—a very complete course for the architectural student will be provided, of which I trust many will be able to avail themselves.

The necessary practical knowledge of the crafts is well provided for by the classes at the Government Technical College, and attendance at these would be found of incalculable value to the architectural student. Every student must set aside some portion of the day for exercise, for there must be perfect bodily health if there is to be mental vigour and activity. At these classes where the student can learn the use of the tools of the carpenter, joiner, bricklayer, mason, plumber and smith, and their methods of work he can obtain healthy exercise while learning most valuable and interesting lessons. Drawing,—architectural, free-hand, perspective, geometry, and light and shade,—can be well studied at the School of Art and Technical College, and should be practised most assiduously. All the business of his profession must be learnt as hitherto in an architect's office, and every student should during his pupilage take every opportunity to make himself thoroughly acquainted with every transaction coming under his notice, and endeavour to learn the why and wherefore for everything he sees done or is called upon to do. He should make special efforts to visit all the works being erected from drawings prepared in the office, and make accurate sketches of the various parts, so that the relation between the geometrical drawings and the work they represent can be clearly realised. If any parts are disappointing in execution, which have been thought to look well on paper, the causes for the disappointment should be inquired into, and thoroughly understood. Geometrical drawings of the part as it might be, or is improved, should be made and compared with the original design. Those parts which seemed ill-designed on paper, but which look perfectly satisfactory in the work should also be noted. In this way we should be led in designing to think always of the material we are to build with; the finished work in space, rather than the effect produced in the drawings; and would avoid the errors in composition so constantly made. This can be best done in an architect's office, where the original geometrical drawings and the finished work can be compared.

Although pupilage is an essential factor in our educational system, it should not, I think, be made use of till after the pupil has spent at least one year after leaving school in devoting his whole time to the study of special subjects under the direction of a trained architect competent to teach, and one who would devote himself principally to directing the studies of the students placed under his care, as is done in the French atelier, and latterly in London, where an architectural studio has been established. My own idea as to the way such a studio should be conducted, is that the principal should provide each student with a time-table of work suited to his particular case; he should advise what lectures or classes held at the different institutions would be best for him to attend, and he should supervise in the studio the preparatory work to be done for those classes, he should give the student such other instruction and exercise as can be arranged for, so that the student's time is fully occupied in acquiring the knowledge necessary to his education. If at the end of twelve months it is found that the student is not sufficiently gifted to be successful as an architect, he would then be free to adopt some other profession for which his particular bent is most suited, and no harm would have been done; on the contrary, he would be a better man for the discipline he had been through.

If, on the other hand, he has learned to take delight in his work, he would pass into an architect's office as a pupil, well prepared to learn all the architect can teach him, and to carry on his studies independently. The fees should be moderate, and if the students are at any time employed upon work for the Principal he should receive in return such remuneration as may be agreed upon.

If such a studio were established here, and I hope sufficient inducement will offer so that it may be, it would help us considerably in the work of our classes by providing a class of students who would have sufficient time at their disposal to enable them to throw their best energies into our work.

Our students now will be those who by the terms of their articles, or by their engagement, are bound to do an honest day's work for their employers. Still I trust that here, as elsewhere, they will be found to have sufficient energy and perseverance, sufficient love for their art,—to devote a considerable portion of their spare time to the gathering of architectural knowledge and gaining the power to make use of it in our classes. Although we have established only three classes,—the Class of Construction, the Class of Design, and the Advanced Class of Design,—and each class meets only once a month, it would be impossible for any student engaged during the day to do justice to them all.

If he is attending lectures at the University, or working at the Technical College or School of Art, one class will be sufficient during the year, while if the work is to be done thoroughly none should attend more than two unless he has exceptional advantages. It must be a matter for careful consideration which classes shall be attended, and I may, I know, speak for the whole of the visitors as well as for myself, when I say that upon this point as well as upon any other we should always be pleased to advise the student to the best in our power.

The Class of Construction is calculated to develop and strengthen,—First, a knowledge of the materials we have to use, their characteristics and strength; second, the mode of using them so that our works may be perfectly sound and staple; third, the power to write accurate and concise descriptions and to illustrate the ideas by sketches; fourth, the power to clearly and logically express reasons for the opinions held. In our rules it is stated how we endeavour to gain these objects. "This class is formed to assist members in obtaining a knowledge of the practical part of their profession, by means of an organised system of mutual study. To this end attention is directed to subjects immediately connected with the practice of architecture, on which each member is expected to acquire information for himself, to be afterwards shared in common with his fellow-students. Questions bearing on the subject to be treated are issued a month previous to each meeting, and the members are required to furnish replies in writing, systematically worked out to as many as possible. The results are then discussed, and members requested to describe the methods by which they arrived at them, illustrating their explanation, whenever practicable, by sketches on the black-board."

The visitor for the evening having previously received all the replies, and arranged them in order of merit, acts as chairman of the class, calling upon the student who has furnished the best answer to any question, to read and explain it. He then invites the other members to ask questions, or to speak upon any branch of it not fully dealt with; he himself supplying any necessary information not touched upon by the students. That the discussion may be in proper order all questions are asked through the visitor, and all replies addressed to him. Whatever knowledge the student may have, he must of necessity derive much good in thus being afforded an opportunity to arrange it in his mind in a way that will be of much service to him in his professional course.

Two of the monthly lectures which have been promised will bear directly upon the work of this class "Timber," by Mr. G. H. Maiden, Curator of the Technological Museum; and "The Chemistry of Building Materials," by Mr. F. B. Guthrie, Demonstrator in Chemistry at the Sydney University.

In awarding the prizes marks will be given for the most accurate answers, for composition, and neatness of the papers; accuracy of the sketches; the power of draughtsmanship displayed both in the sketches, the papers, and on the black-board; and for a general grasp of the subject as evidenced by the part taken in the discussions.

The Class of Design provides for increasing and making use of the knowledge of ancient styles, the importance of which I have already dwelt upon. This end is attained 1st,—by copying chosen examples of the styles set down; 2nd,—by preparing designs in that style for some given subject,—the designs, while not being copies of any one example, yet being strictly in accordance with the principles of the style, and all its details conceived in exactly the same spirit.

The styles that will be dealt with this year are Greek, Roman, Romanesque, Byzantine, and Norman; while next year Early Gothic, and the styles succeeding it will be considered. Endeavours will be made by the visitors to place before the students all the illustrations of examples that can be here obtained. Photographs, lithographs of drawings, and sketches and engravings will be collected, and available for reference by the students, and, in addition, I hope it will be possible to arrange for showing to this class a number of lantern views by means of which the actual effect of the building, and the character of their surroundings, can be clearly brought before them in a most interesting way. It will be the endeavour of visitors not only to ensure accurate drawings of the style, but to bring out, as far as possible, the circumstances under which it was developed; the climate, the material available, the character of the people, their religion and environments, will, I hope, be always kept in view, and touched upon, as far as may be, in considering each style. These historical facts, important as they are, are often apt to be neglected or forgotten in relation to the architecture they produced; but so important is it that I cannot help pausing to express a pleasure I feel that Mr. F. W. Woodhouse, Government Superintendent of Drawing, has kindly consented to deliver a lecture on the subject at our next monthly meeting, entitled "Art: its Relation to the Study of History." It will bear directly upon the work of this class, and will, I am sure, prove to be of great value. In this class prizes will be awarded on marks obtained for accurate draughtmanship and artistic rendering, for the composition of the design, the skilful adaptation of known forms and methods, and for general knowledge displayed of the style of the various examples remaining, and of the historical questions affecting them.

The Advanced Class of Design provides for practice in dealing with the problems of modern requirements, such as we are called upon to consider in the practice of our profession. In this the students will always, I hope, have free scope to practise in any style they may think most suitable to the subject. Having mastered the principles of styles,—the grammar of our art,—students may, I think, be well encouraged to surround those principles with any forms which, while strictly satisfying the utilities, are pleasing, not by their strict resemblance to what has before been done, but by their conforming strictly to the laws of our art, and by the evidence of thoughtful care displayed in every part. This is a most interesting point to dwell upon, and I gladly leave it to Mr. Sulman, who, I know, will develop it in a way that will be interesting and instructive to us all in the lecture he has kindly promised to give on "The Principles of Architectural Design."

The subjects set down for the year are a cottage hospital, suburban residence, village school and teacher's house, elevation of street front, memorial fountain, village church, country hotel, and small art gallery.

The prizes offered will be allotted for the best set of designs submitted during the year. They will be gained by marks won for,—

1. Knowledge shown of requirements; 2. The arrangement of the plan; 3. The construction; 4. The appropriateness of the design; 5. Its composition; 6. Accuracy of the drawings; 7. Skilful draughtsmanship.

As our members increase, or when desired by the students, other classes will be founded for the study of different branches, as specification writing, quantity surveying, colour decoration, furniture, &c., all conducted on the same lines as those I have described.

At our monthly meetings, which I have already referred to, our younger members will always be encouraged to elicit further information or express opinions they have on the subject under discussion. If these meetings are to be the success we hope they will be it is well that we should bear in mind that there is no such thing as finality in knowledge, and though we may hold firm convictions and express them boldly, we should all give a willing ear to those who differ from us, and weigh carefully the thoughts they express. We must not fight for the enforcement of individual views, but for the truth as far as it is disclosed by our present knowledge.

To our younger members, those who have not yet spoken before a number of their fellows, I would say, Do not stand up to speak until you are assured that you have some definite thought to express. If you have, then do not be troubled about the mode of conveying it. Fluency will come with practice, and I feel sure you may all rely upon the sympathy of our members in any attempts you may make.

The developing of the power to intelligently express ourselves upon all matters connected with our art is not the least important branch of our work.

In addition to those lectures I have mentioned, Professor Cowen has kindly promised to deliver one, Mr. Oakshott one on "Sketching," illustrated by Continental sketches, and Mr. Marks one on "Five Famous Domes." All will I am sure be of the greatest interest to us.

Another important feature in our scheme is the visiting of architectural works in progress, art-workers' studios, and manufacturers and builders' workshops. Visits have already been arranged for to the works of some of our leading architects, who have kindly consented to act as our guides. The first visit will be made (by the kindness of Mr. W. L. Vernon and Mr. Howard Joseland) to the City Bank branch in King-street. The time for these visits will be a matter for consideration, and I hope they will be arranged so as not to interfere with necessary recreation. The value of them cannot be over-estimated, for it enables us to get a practical insight into the modes of work adopted by different architects designing in different styles, and the methods of producing all branches of work connected with our art.

Such then, gentlemen, is the ideal we set before us, such the help our Association hopes to afford in the endeavours made to reach it. We cannot all reach an ideal, and many of us must feel keenly our inability to be what we would, but all are the better for having an ideal, and will always rise higher by earnest and well-directed efforts to attain it."

SCHOOL HYGIENE AND PLANNING.

AT the recent School Board Clerks' Conference, held at Huddersfield, Mr. W. J. Abel, of Nottingham, read a paper on this subject. As it may be of some interest to many of our readers to know the views of the chief executive and administrative officers of School Boards on this important subject, we quote from the *School Board Chronicle* some portions of the paper and of the subsequent discussion:—

Mr. Abel said:—The subjects pressing for consideration under the head of school hygiene would seem to present themselves in the following order: 1. School and premises; 2. Furniture and apparatus; 3. Organisation; and 4. School diseases and accidents. For the maximum of healthy development, and thus of efficiency of school work, the schools must be spacious, well ventilated, warmed, and lighted. Careful attention must also be given to the sanitary arrangements, to the out-offices, and drains. Simple gymnastic appliances must likewise be provided suitable to the ages of the children. Attention must, further, be given to secure such an arrangement of school furniture, books, &c., as to encourage healthy posture, and to prevent overstrain of the eyes.

Planning and Accommodation.

The Department's rules upon these matters are generally good, and will serve extremely well as a general guide if the Department consider them as merely general rules, and do not attempt to insist too rigidly on their observance in detail. The walls of all rooms and passages should have a dado of glazed bricks or tiles, which not only add to the brightness of the buildings, but are also of prime importance upon the grounds of cleanliness and health. [I note that the Department now very wisely allow extra expenditure for glazed tiles.] The other part of the walls should be of plain smooth bricks well laid and distempered (painting interferes with the ventilating action of the bricks, which, being pervious to air, greatly assist in ventilation when not choked with paint, &c.). The dado should be washed and the walls brushed at least once a month. Some caretakers appear to think that glazed tiles are self-cleansing. The windows should go quite up to the ceiling, and should open both at the ceiling line and also at a lower level (ordinary sash windows are best, as they give two openings by one movement). They should occupy at least one-fifth of the wall-space of the room, and should be distributed upon opposite sides (the main light being always, if possible, upon the scholars' left, in order to cause shadows to fall to the right, and thus away from the pupils' work). Of course, the ideal of lighting is to obtain light which will cast no shadows and is free from glare. Carefully-adjusted cross lighting (the main light, if any, being from the left) is thus superior to the exclusive left-hand lighting, which appears to be too rigidly insisted upon by the Department. Rooms with dark corners, or with any distance between the upper openings of the windows and the ceiling, must be foul where no mechanical system of ventilation is employed, inasmuch as air tends to stagnate in such places and to change simply by the comparatively slow process of diffusion. Ceiling ventilators, unless communicating with the heating-shaft, the school fan extract-shaft, or with channels heated by pipes opening above gas-jets, &c., are largely a delusion and a snare, either not acting at all, or acting in a wrong direction when most needed. This suggests the remark that all gas-burners in schools should have openings above them leading to ventilation shafts above the rooms. This arrangement, which would add nothing appreciable to the original cost of the school, would make the lighting of gas in winter a powerful aid to ventilation, instead of, as is now so generally the case, a potent agent in vitiating the air. (We must all have noticed how the air of a closed schoolroom in which the gas has been lit for some time is almost insupportable to one entering it from the outer air. This could never be the case if the burners were ventilated as suggested.) Of course, no school would now be built without Tobin or some similar inlet tubes, but it may be noted in passing that the openings, when provided with lids, are often permanently closed by teachers (especially mistresses), when it is a question whether they would not be better without covers. Cloak-rooms should be provided with skeleton stands for children's clothes, in order to admit circulation of air amongst them. They should have provision for abundant through ventilation, and should, if possible, contain hot pipes to assist in drying the children's wet clothes. The heating apparatus should be such as to keep the temperature of the rooms between 58 degs. and 60 degs., and all lobbies or corridors should be heated as well as the rooms, in order to minimise cold draughts. Opinions differ greatly as to the most economical and effective methods of warming schools. We in Nottingham are very well satisfied with our low-pressure hot-water arrangement; but we shall be very pleased to be informed of any superior system. The combined methods of heating and ventilating frequently appear to be greater in promise than in performance. One or two methods we have tried in Nottingham have been far from satisfactory. One can conceive, however, that where a fan or Bunsen ring-extractor is used, ventilation and warming may be well combined by judiciously distributing the hot-air inlets near the top of the room, and by extracting near the bottom. (When the warm air is admitted near the floor and extracted above, it tends, unless the openings are very carefully arranged, to rise through the rooms in columns without much diffusion, and to ventilate only sections of the room.) If air is driven into the school instead of being extracted, this rule respecting placing of inlets need not be observed. For heating the air in this method of warming coils of steam or high pressure hot-water pipes appear much better than flues heated direct by the furnace, inasmuch as this latter method is apt to burn the air, and to introduce very injurious gases from over-heating and chance flaws in the furnace coatings, &c. Air thus heated by passage through furnace flues sometimes enters the room with quite a perceptible sulphurous odour, and causes lassitude with tendency to giddiness and an oppressing feeling about the head, as though a band were twitched tightly around it, indicating the presence of that most dangerous gas, carbonic oxide. As previously suggested, providing the schoolroom contains plenty of window space, so arranged as to give cross-lighting, and to prevent dark corners, with provision for opening almost or quite flush with the ceiling, they can be kept very fairly ventilated if teachers will open the windows regardless of draughts. But for systematic ventilation, some special mechanical process must be adopted, the air being regularly forced in or extracted, either by heating shafts, or, preferably, by the employment of a fan. In Nottingham we have only tried the heated shaft, which has been fairly successful. In Aberdeen, Glasgow, and Leeds, fans have been used apparently with considerable success. The latest account of cost and results in these cases would be valuable. Warm air when brought into a school should not be liberated close to or driven directly upon the wall, floor, or ceiling, or the tendency which air has to adhere to surfaces will cause it to flow along these instead of diffusing itself about the room. We must thus provide for the distribution as well as for the entrance and exit of air. Closets and urinals should be removed as far as possible from the school buildings, and should be provided with automatic flushing arrangements. We find Adams's single seat automatic flush closet most satisfactory. The caretaker should also be instructed to scatter disinfecting powder about, and to give additional flushing whenever any smell is noticed arising from the out-offices.

Furniture.

Upon the subject of scholars' desks, I extract the following remarks from my recent book on "School Hygiene":—"The child should have a comfortable seat, of such a height as to allow his feet to rest upon the floor or footboard, and broad enough to support the greater part of the thigh (at least 10 in. broad). The seat should, moreover, be slightly hollowed to fit the lower part of the body, and be provided with a shaped support for the back. The desk should be sloped, for writing, about 15 deg.; and, for reading, about 45 deg. The front edge of the desk should of such a height as to allow the scholar, when sitting square and upright to his work, with his elbows to his sides, to rest his forearm upon the desk without pushing up the shoulder. There should thus be at least three sizes of desks in each senior school. For writing, the front edge of the desk should project over the front edge of the seat fully 1 in. to enable the pupil to work without bending forwards. This, of course, makes it essential to provide flaps to the desks, and also to have the seats hinged in order to allow of their being easily turned up. (The Bennet desk appears to meet these requirements very well.) The gallery seats, for infants, are still frequently extremely unsatisfactory, being either provided with no slate-ledge for the children, or with a ledge so placed as to necessitate very injurious stooping in writing. In our newer galleries, at Nottingham, we are making the ledges about 11 in. wide, and are bringing their front edges as nearly as possible over the front edge of the seat. We are also widening our older ledges to agree with these arrangements. All teachers should be provided with seats for their desks. Low-backed chairs are preferable to stools, and for mistresses should be considered essential. Maps and pictures with a high-glossed surface are bad for eyesight.

Gymnastic Appliances.

In these days of revival of physical education in schools, it is not necessary to insist upon the need for physical education. We may, nevertheless, with advantage ask ourselves whether we are giving sufficient practical effect to our convictions in this matter. Do we, after providing apparatus in school-yards, &c., also see that they are regularly and systematically used? In Nottingham we are gradually placing simple gymnastic appliances, as rings, parallel and horizontal bars, climbing poles and ropes, and horizontal or inclined ladders in the boys' schools or yards, and are also trying the experiment in some of our girls' departments, according to the teachers' testimony, with very good effect. Of course, we have systematic musical drill, introducing really sharp physical exercises, in all our girls' and infants departments.

In the discussion which followed,

Mr. J. F. Adams said he quite agreed with all the improvements and latest appliances which Mr. Abel had suggested for Board Schools, but this was an opportunity for asking how the 10*l.* limit operated. The Education Department would not sanction a loan for new schools greater than an amount calculated at the rate of 10*l.* per scholar, and if schools were to be built well and with the latest improvements, would 10*l.* per head be sufficient? A short time ago he (Mr. Adams) went to the Education Department about this very question, and one of the Assistant Secretaries asked him, "Why do you exceed 10*l.* per head?" The answer is obvious and conclusive, "Because you have sanctioned the plans for the schools." The whole transaction, so far as the Board were concerned, was absolutely clear and straightforward, the specifications were carefully drawn and tenders invited by advertisement, and it seemed most anomalous that the Department would not sanction a loan for works the plans for which they had previously passed. Workmen of all classes were now being paid a fair rate of wages, which was a fortunate thing, and the price of materials was going up, so that in the neighbourhood of London it was most difficult to keep within this limit. Mr. Abel's remarks as to lighting schoolrooms from the left-hand not being a matter of importance so long as there was enough light, were a little surprising. The opinions of eminent oculists and the practical experience of those who saw schools were dead against Mr. Abel here.

Mr. Lyulph Stanley said that the cost of school building under the London School Board had come to be more like 18*l.* per child than 10*l.*, although they were large schools. When they were building in 1884-5, they were planning all their schools with central halls and ordinary class-rooms for sixty children. The cost was about 9*l.* for the building, excepting tar-paving, &c., and, of course, they all knew that it had been said that the London School Board had been building badly. There was, perhaps, some truth in the allegation. They were under great pressure at that time, and the school buildings were rough. In a certain number of cases the work was scamped. There was not so much supervision as there ought to have been. There was not the difficulty of doing so much at one time in the provinces as in London. They had had in London sometimes seventy or eighty schools building at the same time.

Mr. Smythe, member of the Aberdeen School Board, said that the Aberdeen Board was among the first Boards in the country to give full attention to the question of ventilation. They preferred to have the ventilation in the hands of those in charge of the schools, rather than to have it mechanical, as mechanical ventilation was very apt to get out of order, while if it was under control it would be easy to regulate it. He preferred that the windows should not be open at all. They provided for ventilation other than by windows, and avoided draughts. In the schools which were mechanically ventilated they had to clean down the walls once in three years, but in the schools where ventilation was under their control, once in six years was sufficient, and more than sufficient in comparison with the other schools. In their improved schools the air was drawn from a point about 6 ft. from the ground, through a screen of manilla, through hot air and through a duct the whole length of the school. By this process the air was warmed in winter, and in summer it was cooled in passing through, and considerable impurities were left on the screen. The process prevented the dryness in the air of the school which arose from warming the school by hot pipes carried along the skirting. The cost of those buildings was more than 10*l.* per head, but they were built, so to speak, for all eternity.

Mr. Bryers gave an account of the plans adopted in Sunderland for warming and ventilating, which included the simple method of open fireplaces.

Mr. Arnot (Edinburgh) differed from Mr. Abel as to the method of sitting at the desk for writing. He was decidedly of the opinion that the left side should be turned towards the desk. They found in Edinburgh that it was very difficult to build for 10*l.* per head. They had not been able to keep within that amount, and the cost was always increasing.

Mr. Hector (Aberdeen) explained the advantages of ventilating by expulsion rather than by extraction of air. He recommended those who were practically interested in this subject to take an early opportunity of visiting the new Victoria Infirmary at Glasgow, where they would see in operation an excellent system, which was the system adopted in the Aberdeen schools. It had given very great satisfaction to all who had seen it or tried it.

Mr. Abel briefly replied to some points raised in the discussion.

Illustrations.

CHURCH OF ST. MICHAEL, WILLESDEN.

THE Church of St. Michael, Willesden (of which we give an illustration this week from a drawing hung in the Royal Academy), is a brick church, red outside, and faced with Brockham brick inside, both harmonising well with the Bath and Ancaster stone dressings. The roofs are constructed with curved ribs, and covered with Westmoreland slates. The seating is arranged for 650 persons. The tower, spire, and chancel have yet to be built. The church, which occupies a prominent site at the corner of the Knatchbull and Harrow roads, was opened for service by the Bishop of London on the 27th of last month. The architects are Messrs. Goldie, Child, & Goldie, the builders having been Messrs. Goddard & Sons, of Farnham and Dorking.

BILLIARD-ROOM, BROOKLANDS, WEYBRIDGE.

THIS design has been carried out with certain modifications. The opening to the inglenook was lowered, and a wooden barrel ceiling constructed instead of the flat ceiling. A large divan occupies the end window. The lower seat is about 18 in. above the floor, the upper about 4 ft. 6 in. These dimensions were taken from a divan in a house at Cairo belonging to Mr. Locke-King, for whom the alterations were carried out. The upper part of the great window is glazed with Prior's antique glass.

ST. ANTONIEN KAPELLE, BERNE.

THIS building is at present a miscellaneous timber house, covered by a vast sloping roof. The ground floor is occupied by the town fire-engine, the upper floors by corn and timber stores. There are considerable remains of fifteenth-century frescoes in various parts of the building, and the arcade at the west end is comparatively perfect. The ground falls rapidly from the west end. Under the east end is an octagonal crypt, groined from a central pier, in brick and stone; this used to communicate with the church above by a small stone staircase, now destroyed. The east end abuts on the side of the hill, which falls rapidly away from the road to the river, some 200 ft. or 300 ft. below. The state of the building at present is shown in the small sketch in the left-hand corner of the drawing. It is proposed to remove the various floors inside the building, and to convert it into an English church, with an open-timbered roof, and a stone gallery at the west end. The old crypt would be turned into a vestry, and the staircase to the church rebuilt, as shown on the plan. The eaves would project about 3 ft., and at the angles would be great leaden water-spouts, such as are common in the old Swiss towns. The intention of the old corbels is very obscure. They may have formed part of the construction of an external gallery, but there are several difficulties in the way of this view.

REGINALD BLOMFIELD.

THE CROFT, STANSTEAD MONTFICHET.

THIS house has been designed to occupy a picturesque site upon sloping ground.

The garden-fronts, which form the outside of an L-shaped plan, are shown in the view, and have respectively south-west and south-east aspects. The entrance is by the porte-cochère and vestibule into a large galleried hall lighted from the back.

This view, with two others showing respectively the hall-windows and the drawing-room wing, is hung in one frame at the Royal Academy Exhibition. The materials are red brick on the ground floor, upper floors mainly rough-cast and half-timber work, with red tiles for the roofs.

W. D. CARÖE.

NO. 11, CHARLES-STREET, MAYFAIR.

THIS mansion, from the designs of Messrs. J. T. Wimperis & Arber, of Sackville-street, Piccadilly, W., will have a front of Palladian character, to which the fine frontage is well adapted; it also is kept in accordance with the style of the best houses in Berkeley-square.

The main feature of the front is formed by the pilasters running up through two stories carrying an enriched entablature, surmounted by an attic story, the ground floor being rusticated and forming the base.

The material of the front and chimneys will be entirely Portland stone.

The drawing from which the illustration is taken is exhibited at the Royal Academy.

SCULPTURE AT THE ROYAL ACADEMY.

OF the sculpture illustrations given this week, the "Sybilla Fatidica," by Mr. Pegram, is a life-size group representing the old legend of the witch's power to read the fate of a young woman in a glass sphere: it is a condition of the legend that the subject whose fate is being observed should be divested of her clothes, which gives the sculptor the opportunity for a nude figure, which in this case is finely treated, in an attitude very expressive of anxiety and fear. The group is in plaster, but is intended for execution in marble.

Miss Halse's little studies of babyhood (the original figures about 6 in. high) are among the prettiest of the minor works in the Academy. Miss Rope's "Boy on Dolphin" is something more than this; it is a small scale bas-relief showing much of the abstract poetry of form and beauty of line characteristic of antique work.

ARCHÆOLOGICAL SOCIETIES.

SURREY ARCHÆOLOGICAL SOCIETY. — The annual excursion of this society for the present year will be to Charlwood, Leigh, and Reigate, on Wednesday, July 22. Members and friends to assemble at the Railway Station, Redhill, whence carriages will start at 12.30 for Charlwood Church, where Mr. J. L. André, F.S.A., will read a paper descriptive of the building. Mr. Wilkins's house, near the church, will next be visited and described by Mr. Ralph Nevill, F.S.A. At 3 p.m. the carriages will start for Leigh Church and Leigh-place; at the latter Mr. John Watney, F.S.A., will read some notes on its history. Reigate Castle and Caves are next on the programme. Through the courtesy of the Mayor and Corporation, members and friends will be admitted to the caves free, and the caves will be illuminated. A paper on the history of the castle will also be read. The Rev. J. W. Pickance, M.A., will describe Reigate Church and the monuments therein. Charlwood and Reigate have been visited by this Society on former occasions. The members had an excursion to Charlwood on July 4, 1872, when the church was described by the late Sir George Gilbert Scott, who then pointed out the beauties and chief architectural peculiarities of the interior. On the south wall of the nave is a wall painting; the subject is: "Les trois vifs et les trois neufs." Reigate and its church and caves, &c., were first visited by the Society in June, 1860.

ROYAL SOCIETY OF ANTIQUARIES OF IRELAND.—A general meeting of this Society will be held at Killarney on Tuesday, August 11. An interesting programme has been published. On subsequent days, many of the members will take part in the annual meeting of the Cambrian Archæological Association, which commences in the same town on Wednesday, August 12.

THE INCORPORATED ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS:

ANNUAL MEETING.

HAVING, in our issue of July 7 (p. 12 *ante*) given the substance of the address given by the President (Mr. T. De Courcy Meade, M.-Inst. C.E., Engineer and Surveyor to the Hornsey Local Board), we now proceed to give some further account of the proceedings.

Mr. R. Godfrey, A.M.-Inst. C.E., Engineer and Surveyor to the King's Norton Rural Sanitary Authority, read a paper on "Way-Leaves and Easements." The paper was one of great interest and value. Mr. Godfrey at the outset laid stress on the great uncertainty attending the actual cost of works owing to the varying practices adopted in different parts of the country for compensating owners of property for way-leaves and easements. At the end of his paper he appended, in tabulated form, a great deal of valuable and interesting information gleaned by him on this important and difficult subject.

Mr. Thomas Walker M.-Inst. C.E., Engineer to the Corporation of Croydon, read a paper on house-drainage as carried out in that town, where, he said, the local authority has decided that where the drainage of two houses unites, the length forward to the main sewer is also a sewer, and as such is kept in order by the local authority. By the plan adopted in Croydon a modified form of combined back-drainage is adopted, so as to avoid bringing drains under the houses. Advantage is taken of openings between semi-detached houses to bring the drainage of two or three or more houses to the main sewers in the streets. The system adopted affords great facilities for frequent and immediate inspection.

After an adjournment for luncheon these papers were discussed at some length.

In the evening the annual dinner of the Association was held in the Venetian Saloon of the Holborn Restaurant, the President in the chair. The Company numbered nearly one hundred. After the usual loyal toasts, Mr. Lewis Angell gave the toast of "The Houses of Parliament," to which Mr. E. Boulnois, M.P., and Dr. Rentoul responded.—Mr. E. Pritchard then proposed "The Local Government Board." Sir Hugh Owen (Permanent Secretary, Local Government Board), in reply, observed that no one realised better the importance of the duties which devolved upon Borough Engineers and Surveyors than the Local Government Board. It was a remarkable fact that during the last ten years the outstanding loans of the various municipalities and local boards had increased from 63 millions to over 100 millions. It would have been impossible for such large works as that sum represented to have been carried out had not a great change come over the opinion of the country in favour of sanitary legislation. From his own official experience he might say that at no time had the duties of Borough Engineers been more sedulously or satisfactorily discharged than at present.—Mr. J. Thornhill Harrison gave "Success to the Association." The President, in responding, said the Association was founded some twenty years ago. Since that time it had gone on steadily increasing in numbers and, he felt sure, in importance also. The endeavour of the Association had been, from the beginning, to improve the *status* of the municipal engineer, and to advance his knowledge, and he ventured to think that it had done a good deal towards the improvement of each individual member. A few years since the Association started voluntary examinations, and he was pleased to say that although those examinations had only been commenced for so short a time, yet a large percentage of the men who had presented themselves as candidates were at the present time holding municipal appointments.—Sir R. Rawlinson proposed "The Municipal and County Institutions of the Country," and other toasts followed.

On the second day (Friday) Mr. W. H. Preece, F.R.S., gave an address on "The Relative Merit and Cost of Gas and Electricity for Lighting Purposes." The upshot of this address (to which we may return on an early occasion, if space permit) was that, all things considered, electric lighting is now beginning to be practicable at a cost little, if at all, above that of other means of artificial lighting.

Mr. Preece's paper was followed by one by Professor Robinson M.Inst.C.E., on "Electric Lighting by Municipal Authorities." This went into the matter with great detail, and showed that there are great possibilities in the way of electric lighting under wise municipal guidance.

Having discussed these papers, the members took steamboat at Westminster Pier and proceeded to Messrs. Doulton's potteries at Lambeth, which they explored in several departments, paying special regard to sanitary appliances, although evincing much interest in the production of the now well-known Doulton art pottery. Here the visitors were entertained at luncheon by Sir Henry Doulton, who, in the course of a speech, gave some interesting reminiscences of the early days of sanitary pottery ware.

The party left Messrs. Doulton's works in breaks for the Electric Railway Depôt Works at Stockwell, where the mode of construction of the City and South London Railway was explained to the members by Mr. Hutton Greathead, the Chief Engineer of the Company, who designed and constructed the railway. This method of construction, it was pointed out, has special interest on account of its suitability for driving tunnels for waterworks (for this purpose two tunnels are now being driven in this country), for sewers, in order to avoid interference with streets and to secure economy and speed, and for communications for general traffic. The largest tunnel hitherto constructed in this way is 20 ft. in diameter, and the smallest (two now constructing) are about 8 ft. and 9 ft. in diameter, but larger and smaller tunnels are proposed. One great feature claimed for this method of construction is that the iron tunnels are made perfectly watertight, and another is that they can be driven with absolute safety through any material and under water without the necessity of pumping the water out of the surrounding strata. There are six stations upon the line, which is worked by electricity generated at the depôt. At each station are hydraulic lifts for raising and lowering the passengers, the power for working which is also generated at the depôt. Each train at present consists of three carriages, seating 100 passengers, and an electric locomotive. These trains are now run at intervals of from five to six minutes, but it is intended to run them at shorter intervals as soon as the necessary additional rolling stock has been acquired.

Proceeding by the line to the City Station, in King William-street, the members took boat at Old Swan Pier for the Naval Exhibition, where they spent the evening.

On the third day, Saturday, the members, upwards of one hundred in number, embarked on board the *Shah* steamboat (kindly provided by the President) at the Temple pier, and proceeded down the river, inspecting first of all the Tower Bridge. The total length of this bridge and abutments is 940 ft., and including the approaches, 2,640 ft. The width of the opening span is 200 ft., giving a headway above high water when opened of 139 ft. 6 in., and when shut, 29 ft. 6 in. The width of the side spans is 270 ft., giving a headway of from 20 to 27 ft. above high water. The width between parapets in the opening span is 50 ft., and in the side spans and approaches 60ft. The steepest gradient of the approaches is 1 in 40 (steepest gradient of the approaches of London Bridge 1 in 27). The depth of foundations is 60 ft. below T.H.W., and 27 ft. below the bed of the river. The sectional area of waterway is 20,040 square ft. (that of London Bridge is 19,300 square ft.). The depth of water in the opening span at high water is 33 ft. 6 in., and at low water, 13 ft. 6 in. Each leaf of the opening spans is 50 ft. wide by 100 ft. long, and weighs, inclusive of roadway and counterbalance weights, 950 tons. The following are the estimated quantities of materials in the bridge and approaches:—31,000,000 bricks, 70,500 cubic yards of concrete, 19,500 tons cement, 235,000 cubic feet of granite and other stone, and 15,000 tons of iron and steel. Of machinery, there are two steam pumping-engines for hydraulic machinery, each 360 h.p.; eight large hydraulic engines and six accumulators, and four hydraulic lifts in towers for passengers. The estimated cost of the work is 750,000*l*. Mr. John Wolfe Barry is the engineer, and Mr. E. W. Cruttwell is the resident engineer. The last-named gentleman very kindly received the members and explained the construction of the bridge to them.

Leaving the Tower Bridge works the party next landed at Deptford to inspect the abattoirs there. The Deptford Cattle Market, it may be news to some of our readers to know, is erected on the site of the old Deptford Dockyard. In fact, some of the roofs of the old slip-way sheds are still retained. It contains an area of about thirty acres, having a river frontage of nearly 1,100 feet. It was constructed by the Corporation of London, and opened for public use in January, 1872. There is covered lairage for about 5,000 cattle and 23,000 sheep. There are seventy slaughter-houses. The number of animals slaughtered daily varies considerably, weekly about 3,000 bullocks, 500 calves, and 2,300 sheep. There is chill-room capacity for treating 800 sides of beef per day. The chill-rooms have been lately enlarged; the machinery, by Haslam, of Derby, is the largest in England, and is capable of passing 150,000 cubic feet of cold air per hour. Vessels of large (4,500) tonnage are able to discharge at the jetties, of which there are three, and the Continental steamers can unload at any state of the tide. Peter the Great worked at the old Dockyard that was here.

Leaving these works the party walked to the works of the Electric Supply Corporation, at Deptford. Deptford central station is the generating station of Mr. Ferranti's system. Here the large currents are generated and transmitted to the four distributing stations in London, of which the Grosvenor and Trafalgar only are at present in working order. The Pimlico and Blackfriars are in course of construction. The great 10,000 h.p. dynamos are not yet completed, and probably months will elapse before they are ready. The station is a large building of 210 ft. by 195 ft.; the height of the main building, 100 ft.; and chimney shafts, 150 ft. The whole of the plant is made on the premises. The two large dynamos are of 1,500 h.p., and generate current at 10,000 volts. The diameter of each armature is 13 ft., and the height of the machine from the bed plate 14 ft. 6 in. Each machine possesses 48 armature bobbins, which are copper strips wound on a core of insulated brass strips, and connected in pairs. New ones can be replaced on the armatures in a few minutes, a characteristic which is found in all the Ferranti dynamos. On the faces of the field magnets are fixed two ebonite caps, fastened one inside the other with Ferranti compound. Each of these caps is tested to 20,000 volts; they thus prevent sparking from the armature to the frame of the machine. By means of special machinery the field-magnet frames of the dynamo can be drawn back for cleaning in less than ten minutes. The exciting machines (Allen & Kapp dynamos) are placed at the rear of the large dynamos; they are of slow speed, 200 revolutions, 50 volts, and 400 ampères each. By means of special switches they can be connected to any of the dynamos, or, run in parallel, ampèremeters and voltmeters on each machine indicating the exact state of the exciter. The engines driving the large dynamos are of 1,500 h.-p., and are of the vertical marine Corliss type, made by Hicks, Hargreaves, & Co., Bolton. The driving-power is transmitted by 40 5-in. ropes on a flywheel of 22 ft. diameter, weighing 60 tons. The stroke of the engines is 4 ft. The low-pressure cylinder measures 56 in., the high-pressure measuring 28. Although the Corporation intended that the Grosvenor station was ultimately to be a distributing centre, current was generated there for some time. Owing, however, to the Courts issuing an injunction, the generating plant was stopped and removed to Deptford, and is driven by two new 700 h.-p. engines. The two dynamos of 625 h.-p. are of slow speed, and each gives a pressure of 2,500 volts, which is converted by four 150 h.-p. transformers to 10,000 volts. A Siemens exciter is used to each dynamo, a small Kapp exciter being available in case of accident. The engines are fitted with Corliss valves, with high and low pressure cylinders built in tandem. The diameter of the flywheel, weighing 35 tons, is 24 ft., 17 ropes driving the dynamos. The switchboard is placed upon a specially-insulated platform. Here the current from the four dynamos is brought and passes through ampèremeters, and then, by a switch with a 3-ft. break, on to the omnibus mains, which are connected with the London mains. Each of the 1,500 h.-p. dynamos is connected in the same fashion, so that all may be at once placed in parallel. A separate ampèremeter on each London main indicates the amount of current passing through it. The resistances for regulating the voltage are placed between the

foundations of the engines, and are worked by ebonite tubes running in slides. The fuses are placed in specially tempered glass, as the exact state of the fuse is seen. The boiler-house contains twenty-four 500 h.-p. boilers. It is intended to place an additional twenty-four. A novel and curious piece of plant is an armature ring of one of the 10,000 h.-p. dynamos. It measures 35 ft. in diameter, it is made of cast-iron in eleven pieces, and is to be fastened to the dynamo-shaft by cast-iron arms or spokes, each of which will be in turn secured to the shaft by a double-milled steel ring shrunk on, whilst as an additional security twenty-two solid steel bolts, 6 in.-diameter, each weighing when finished 12 cwt., passing through the outside of the armature ring, screw direct into a steel ring mounted round the centre of the dynamo shaft. The armature and shaft when completed will weigh 225 tons, and the field-magnets 350 tons more. One 5,000 h.-p. engine is to be fixed at each end of the dynamo-shaft; the armature thus being in the centre, and taking the place of the ordinary flywheel; the bobbin-holders are fixed in the same way as on the 1,250 machines, 132 coils being used. Five dynamos of this type, each supplying 200,000 lights, are to be built. It is stated that since February 10 the mains have been working most successfully at a daily pressure of 10,000 volts, as since that date the whole of the supply of current to the London Electric Supply Corporation has been transmitted at that pressure from Deptford to London.

The members then walked to Greenwich pier, and again went on board the steamer, where they were entertained at luncheon by the President while they were on their way to the South Metropolitan Sewage Outfall Works at Crossness. These works may be said to consist of the pumping station, erected by the late Sir Joseph Bazalgette, which lifts the sewage of the south side of the Thames into the old reservoir, which stores it during the rise of the tide so that it can be discharged on the ebb stream. They are now undergoing modifications and additions so as to adapt them to the purpose of precipitation. The works were explained by Mr. A. R. Binnie, the Chief Engineer of the London County Council.

The members subsequently returned by the *Shah* to London, having had a very pleasant and instructive outing.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of this Council was held on Tuesday afternoon, at Spring-gardens, the Chairman, Sir John Lubbock, presiding.

Appointment of Two District Surveyors.—The adjourned report of the Building Act Committee, dated June 23, contained the following paragraph and recommendation:—

"We have to report that we have proceeded upon the following reference by the Council of July 15, 1890—'That the necessary measures for filling any vacancy in the office of District Surveyor be taken by the Building Act Committee, and that the Committee do in each case recommend to the Council the person whom they consider the most suitable for the appointment.' Applications for the vacant appointments of District Surveyors for the districts of Camberwell, and St. Mary Whitechapel, Christ Church Spitalfields, the Hamlet of Mile-end New-town, and the Tower Liberty were received from thirty-three duly-qualified persons, all of whom attended the Committee, with the exception of Mr. Smallpeice, who was prevented through illness from attending at the specified time, and Mr. Edwards, who was not present when his name was called. We were favourably impressed by several of the candidates who appeared before us, and after careful consideration of their respective qualifications, we recommend—

'That Mr. Ellis Marsland, District Surveyor for East Kensington, be appointed District Surveyor for the District of Camberwell, upon condition that he resigns his present appointment, and that Mr. Arthur Crow be appointed District Surveyor for the District of St. Mary Whitechapel, Christ Church Spitalfields, the Hamlet of Mile-end New-town, and the Tower Liberty.'"

Dr. Cooper moved an amendment to the effect that the appointment of District Surveyor for Camberwell be referred back for consideration, on the ground that Mr. John Marsland, a member of the Council, had sat on the Building Act Committee and voted for the election of his cousin, Mr. Ellis Marsland. The amendment was seconded, but lost by a large majority. It was not denied that Mr. John Marsland had voted for his relative, but it was stated that he in no way sought to influence the Committee. The recommendation was then agreed to.

Proposed Improvements.—The Improvements Committee submitted a long report relating to various improvements in different parts of the metropolis. These included the widening of the Strand, the construction of a new street from Holborn to the Strand, the widening of Nine Elms-lane, Battersea Park-road, York-road (Battersea), Bell-lane (Middlesex-street) and Sandy's-row, and the construction of a southern approach to the new Tower Bridge. The total estimated cost of all these works is 2,133,625*l.* We give the paragraphs relative to the proposed widening of the Strand and the proposed new street from the Strand to Holborn:—

"*Strand (widening at Holywell-street).* — On July 29, 1890, the Council referred to us a memorial from the Strand District Board, urging that steps might be taken for widening and improving the Strand. On June 16 of this year, the Council referred to us a further memorial from the same authority, having the same object in view. It will be within the recollection of the Council that on October 1, 1889, we brought up a report on this subject, recommending that the block of buildings on the south side of Holywell-street be removed, with power to deal with the enclosed spaces together with the public conveniences adjoining the churches of St. Mary-le-Strand and St. Clement Danes. This recommendation was approved by the Council.

On November 5, 1889, the Parliamentary Committee suggested what has since been known as the 'Strand betterment scheme,' providing for levying contributions from owners of property situate within a wide area surrounding the suggested improvement. This, much to our regret, was approved by the Council, and the bill for carrying out the improvement on the principle of 'betterment' was in due course introduced into Parliament.

On July 1, 1890, the Parliamentary Committee informed the Council that the Select Committee of the House of Commons had reported adversely to the betterment scheme, and subsequently the Bill was abandoned. It appeared, however, that the House of Commons Select Committee had shown a disposition to assist the Council in protecting public interests by recommending that owners or occupiers of property to be acquired for the improvement should not be entitled to any compensation for buildings or alterations which in the opinion of arbitrators or juries may have been made with a view to obtaining increased compensation. It has been intimated to us also that from certain expressions which fell from members of the Select Committee they would not have been adverse to requiring some contributions from owners of property obviously and indisputably benefited by the improvement, such as would be the case in regard to the property on the north side of Holywell-street, which, by the removal of the block of buildings between Holywell-street and the Strand, would become possessed of a frontage to one of the best thoroughfares in the metropolis.

The proposition which we now submit to the Council is limited to the widening of the Strand by the demolition of the island or block of buildings already referred to, and dealing with the enclosed spaces, together with the public conveniences, adjoining the Churches of St. Mary-le-Strand and St. Clement Danes. The estimated net cost will be 501,500*l.*, and we propose that the owners of the property on the north side of Holywell-street, which by the improvement will acquire frontages to the Strand, shall be required to contribute by way of an improvement rate a sum which shall not exceed one-half of the increased annual value of their property.

The scheme will provide:—

(*a*) That a schedule of the property to be included in the improvement rate shall be attached to the Bill.

(*b*) That owners shall have the right of appeal, as to their respective assessments, to an arbitrator to be appointed by the Local Government Board.

(*c*) That the improvement rate shall commence to be payable on October 1 next following the completion of the improvement.

(*d*) That the improvement rate shall be payable either in a lump sum or by annual or other payments. Deferred payments to carry interest at 4 per cent.

(*e*) That, with the view of accommodating those who may not immediately come into receipt of the improved rentals, owners shall have the option of deferring payments, and, in such cases of deferred payment, the amount, together with interest,—or should any instalment have been paid, the balance remaining unpaid,—may be paid at any time, and thus future interest saved, but any balance remaining unpaid on October 1 33 years after the completion of the improvement shall then be paid.

(*f*) That the Strand District Board shall collect this improvement rate, and receive as compensation the difference between the 3½ per cent. interest which it will have to pay the Council for its loan, and the 4 per cent. which will be charged to owners on deferred payments.

(*g*) That the Strand District Board shall pay to the Council an amount which shall be ascertained to be one-half of the before-mentioned improved annual value capitalised; the Council to sanction a loan for this purpose.

The large and daily increasing traffic which passes through the Strand imposes upon the Council the obligation to provide adequate facilities for it. The necessity for the proposed improvement has for many years been recognised by the public, and we have no hesitation in strongly urging the Council to carry out the improvement without further delay. We recommend—

'(*a*) That the Council do apply in the next Session of Parliament for powers to remove the block of buildings on the south side of Holywell-street, and to deal with the enclosed spaces together with the public conveniences adjoining the Churches of St. Mary-le-Strand and St Clement Danes.

(*b*) That provision be made in the Bill that the owners of the property, which by the removal of the block of buildings on the south side of Holywell-street will become the north side of the Strand, shall contribute to the cost of the improvement by means of an improvement rate, to be ascertained and levied in accordance with the provisions suggested in the foregoing report (with such modifications or alterations as may be hereafter sanctioned by the Council prior to the application to Parliament); the remainder of the cost being paid by the Council.'

Holborn to the Strand Communication.—We have proceeded upon the following resolution of the Council of January 20, 1891, 'That it be referred to the Improvements Committee to consider and report on the advisability of investigating the necessity of improvements to accommodate the increased traffic between Holborn and the Strand, already greatly congested at the corner of Southampton-row and Holborn, and likely to be greatly increased as soon as the bars and gates on this route are removed.'

In connexion with this subject, we have had under consideration the petition referred to us on January 13, 1891, from inhabitants of the Holborn Division of Finsbury and adjacent districts, urging the necessity of improved street accommodation between Holborn and the Strand, and we have received a deputation from inhabitants of Holborn in support of the suggested improvement.

It will be within the recollection of the Council that on October 8 last we reported upon a previous reference which had the same object in view, and we recommended the construction of a new street from Holborn to the Strand, and of a spur street from a point of the new street near Drury-lane to St. Clement Danes Church; the Council, however, decided to postpone its decision. The subject having been re-opened by the Council's resolution of January 20 last, above referred to, we have given it most careful consideration. Having satisfied ourselves that such a thoroughfare as that suggested from Holborn to the Strand is needed, we proceeded to consider the best line of route to adopt for it. We examined numerous plans and suggestions, and amongst them the following—

(*a*) A scheme for a street 90 ft. wide from Little Queen-street, running in a south-easterly direction to Lincoln's Inn-fields, passing through the west side of Lincoln's Inn-fields, absorbing Portsmouth-street, skirting King's College Hospital, taking in Clement's Inn and opening into the Strand on the northern side of St. Clement Danes Church, close by the Royal Courts of Justice.

To this scheme, however, there are objections, of which the following are the principal—

1. The new street has to provide for traffic passing from the north and north-east to the south-west, whereas this proposed thoroughfare trends to the south-east.

2. The thoroughfare could not be made so handsome a one as some of the other schemes would admit of, and therefore the recoupment would be less.

3. When on previous occasions it has been proposed to utilise the west side of Lincoln's-inn-fields, the inhabitants very strongly objected to the tranquillity of this spot being disturbed.

4. The line of route would not lend itself easily to possible future street improvements.

5. The cost of this street would be greater than any of the others suggested.

Having regard to these objections we are not prepared to recommend the Council to adopt this plan.

(*b*) This scheme suggests the construction of a street in almost a straight line from the northern end of Little Queen-street to the junction of Catherine-street, and White Hart-street at the north-eastern corner of the Gaiety Theatre, taking in the whole of the buildings (including the Gaiety Theatre) bounded by Exeter-street, Wellington-street, the Strand, and Catherine-street, and throwing the whole of this site into the public thoroughfare, forming an open space.

The chief objections to this scheme are the gradients at the southern end and the cost.

(*c*) Another scheme which we have had under consideration, and which we have decided to recommend the Council to adopt, is that for the formation of a new street (90 ft. wide) from the Holborn end of Little Queen-street, running straight in a southerly direction, passing between Freemasons' Tavern and the Sardinia-street Electric Lighting Station, intersecting Great Wild, Vere, and Stanhope-streets, to the point where Drury-lane is intersected by White Hart-street and Blackmore-street,

and then gently curving to the Strand, taking in the east corner of Catherine-street. The object of bending the street in this direction is to provide an easy gradient.

This scheme was strongly supported by the deputation which waited upon us.

Provision is made for widening the eastern corner of Wellington-street at its junction with the south side of the Strand.

As a result of a communication with the Chief Commissioner of Police, we have been informed that the traffic passing in and out of the Strand to and from the new street, could be regulated better if this scheme were carried out than would be the case if some other schemes were adopted.

The gradients would be as follows:—From Holborn to Great Wild-street, 1 in 115; thence to a point near Wych-street, 1 in 150; from Wych-street to the Strand, 1 in 35.

The scheme also provided for the construction of a spur street from the intersection of Drury-lane to the Strand at St. Clement Danes Church, but we have decided to omit this part of it for the present, as we understand that certain street improvements on the Duke of Bedford's estate in the immediate locality are likely to be carried out before long, and the spur street may with advantage be planned when these improvements are determined upon.

By reference to the map of London it will be seen that the traffic which has to be provided for is that passing along Seymour-street, Woburn-place, and Southampton-row (which cannot fail to be largely increased by the removal of the existing obstructive bars), also that from the Great Northern and St. Pancras Stations down Gray's Inn-road, as well as that from Islington by Rosebery-avenue, and making for the south across Waterloo Bridge, or the south-west by way of the Strand. This scheme has this in view.

Although we are not charged with the improvement of insanitary districts, it may be incidentally mentioned that the scheme would provide for improving one of the worst districts of the metropolis.

It is most important, having regard to recoupment, that any artizans' dwellings necessitated by the improvement should not occupy frontages in the new street. The number of persons displaced will be about 3,000.

With a view to recoupment, this new street should be a first-class thoroughfare. It may be worth consideration whether the Council should endeavour to introduce some novelty for this purpose, such as projecting galleries somewhat similar to those in the Rue de Rivoli, Paris, and in Turin, or some system of glazed roofing of which the Gallery at Milan is suggestive. Otherwise provision should be made for the planting of trees.

The suggested new street (combined with the probable widening of Southampton-row) lends itself to the idea of a branch underground railway as a feeder to the three northern railways. This might add to the recoupment.

The estimated net cost of the improvement is 933,000*l.*, which includes 121,000*l.* for rounding off the corner of Wellington-street. In estimating the cost, nothing has been calculated for recoupment on public-house licences, or for re-housing persons of the labouring class to be displaced.

We desire to remind the Council that there is at present no direct main thoroughfare from north to south through this part of London, and that the communications between the immense populations of St. Pancras, Holborn, the Strand, Lambeth, and Southwark, is through the most circuitous and inadequate routes, involving great loss of time and inconvenience and the overcrowding of the present available thoroughfares. We think, therefore, that the time has now arrived for effecting this desirable improvement.

The recommendations which we have to submit are as follows:—

"*(a)* That the Council do apply in the next session of Parliament for powers to construct a new street (90 ft. wide) from Holborn to the Strand, as shown upon the plan submitted forthwith.

(b) That powers be also sought for rounding the eastern corner of Wellington-street at its junction with the southern side of the Strand, as shown upon the plan submitted herewith.

(c) That provision be made for the construction of a subway under the new street (for mains, wires, &c.), and also for the planting of trees on each side of the thoroughfare.

(d) That it be referred to the Housing, &c, Committee to consider and report as to the arrangements to be made for rehousing persons of the labouring class to be displaced by the formation of the new street.'"

The consideration of this important report was deferred until next week.

COMPETITION FOR LAYING-OUT TOWYN-ON-SEA.—The result of the competition promoted by Mr. John Corbett, M.P., for the laying-out of the Corbett Estate at Towyn-on-Sea, was decided last week with the following results:—1st premium, 100*l.*, Mr. W. Dunbar, C.E., Rhyll; 2nd premium, 30*l.*, Mr. James B. Hikins, architect, Liverpool; 3rd premium, 20*l.*, Messrs. Veall & Saut, architects, Cardiff. Sixty-two designs, accompanied by suggestions for sale of lots, management, and schemes of sewerage, were forwarded to Mr. Corbett.

ROYAL ACADEMY:

ADMISSIONS TO THE ARCHITECTURAL SCHOOL.

THE following are the July admissions to the Architectural School of the Royal Academy, Mr. R. Phené Spiers, Master:—

Students—Upper School.

H. C. Corlette.	A. F. Usher.
J. Paxton.	E. W. Wonnacott.
J. S. Stewart.	

Probationers.

E. R. Barrow.	C. O. Law.
H. Bulman.	H. Tarbolton.
A. J. Forge.	J. H. Tyars.
A. Hill.	

Correspondence.

To the Editor of THE BUILDER.

MAIN ROAD MANAGEMENT.

SIR,—After reading the article on "Main Road Management by County Councils," in your issue of May 30 last, and particularly that portion relating to the North Western County of Cumberland, I think it but right that your readers should know what has been down by the Cockermouth Union Highway Authority, whose district contains about 430 miles of road, 100 of which is main road, being the largest Highway District in Cumberland.

During the past five years steam-rolling has been followed with great success on both the main and district roads, the Authority having a roller of their own, which has been let out on hire to the County Council for the main roads in this district every year since the Council's formation, in addition to being used on the district roads.

The contracts entered into for repair of district roads, which are let annually, provide that 6d. per cubic yard be charged for the use of the roller, *i.e.*, equal to 1d. per superficial yard of road rolled, or 6½ per cent. of total cost of district roads, or from 3 to 5 per cent. of total cost of main roads.

The County Council have had on order for the last few months two new steam-rollers for use on their main roads, in addition to the one above-named, also there are two other steam-rollers which have been in use during the last five years, viz., one by Messrs. Jno. Taylor & Co., of Workington (the pioneers of steam-rolling in this county), and used by the following Local Boards, viz.:—Arlecdon and Frizington, Cockermouth, Cleator Moor, Egremont, Keswick, and Workington. The other by the Whitehaven Town and Harbour Trust, and used solely in their Urban District.

The above facts speak for themselves, and show clearly that Cumberland is alive to the benefits derived from steam road-rolling.

JOS. B. WILSON, C.E.,
Surveyor, Cockermouth Union Highway Board.

PROPOSED HOUSE, HAMPSTEAD.

SIR,—The author of the proposed house at Hampstead, which you illustrate to-day, puts the cost at 2,500*l.*

I have had the curiosity to cube the building, and (taking for the main building an average height of 30 ft.), I find the contents are well over 100,000 ft.

The author, if he ever took the trouble to cube the house at all, must have put it at about 4¾d. per foot. Thus:—

100,000 feet at 4¾d., say		£2,000
For two circular stone bays ,, two stone colonnades ,, verandah	add	500
Total of author's estimate		£2,500

Speaking from a wide experience of work of this class, I am sure that with red brick and stone it cannot be built in any London suburb at much less than 9d. per foot cube when economically planned. The H plan, which has a certain simplicity on paper, is really a very expensive sort of plan; it gives the maximum of external wall for the minimum of space enclosed; a combination of the "solid" and the "picturesque" in fact which cannot but be costly. I should not be at all surprised to find that at Hampstead, which is an expensive suburb to build in, such a house came to a shilling per foot cube. But take it at 10d., and add on 500*l.* (little enough) for bays, colonnades, and verandah,—I say nothing about boundary-walls,—and we have 4,666*l.* as the probable cost.

I am afraid that in this instance the author is about 100 per cent. out. I hope he has been more accurate with what other estimates he may have given in his book on house-building, or he may find an angry Colonel and an architectural *cause célèbre* awaiting him in the future. CUBIT.

July 11, 1891.

FREEHOLD BUILDING LAND AT HASTINGS.—As will be seen by an advertisement in another column Messrs. E. & H. Lumley announce an important sale of freehold building land at Hastings for August 6.

The Student's Column.

MARBLES.—III.

ROMAN MARBLES.

IN our last article we stated (p. 34) that the "Romans imported from every corner of their vast empire the grandest and choicest materials for temples and palaces." When, therefore, we speak of "Roman marbles," we do not merely allude to those which were quarried in Italy, but we include under that term the principal kinds raised by the Romans both at home and in their colonies. Indeed, they so highly valued many varieties of the stone as to go to enormous pains and expense in transporting the unwieldy blocks to great distances, and so mixed up the various kinds as to make it exceedingly difficult for us to satisfactorily trace the origin of each. Until quite recently the localities from whence many of these marbles came were unknown, and tradition was our only guide as to whether they were of Italian, Numidian, Egyptian, or Greek origin. The discovery of several of these beautiful stones in their native state *in situ* forms the greatest acquisition to our knowledge of the history of marbles which has been made in recent times; and in some instances this has led to the re-opening of the quarries.

We will now briefly describe some of the principal marbles used by the Romans. Commencing with the statuary or white marbles, we find from Corsi's observations that the kinds largely used by them were Marmor Parium, Porinum, Pentelicum, Hymettium, Thasium, Lesbium, Tyrium, Coraliticum, and Lunense.

Marmor Lunense, Marmo di Carrara, or Carrara marble is found in the Apennines overlooking the Bay of Spezia, and was not only famous in Roman times, but is very extensively quarried at the present day: with the adjoining workings of Massa and Seravezza they are estimated to cover an area of about twenty-seven square miles. As we purpose describing the Carrara quarries when dealing with marbles at present raised in Italy, we will now confine our remarks to its use in ancient times. The Latin name of the stone is derived from the town of Luna, which latter fell into Roman hands on the conquest of Liguria, and near which place the conquerors soon began to work the stone now known generically as Carrara. The quarries were heavily drawn from in the time of Augustus, who is called by Livy, "*Templorum omnium conditor ac restituor*," as he transformed Rome from a town of brick into a city of marble. The exact extent of the Roman workings is unknown, but it is certain that in those early times the quarries of Fantiscritti, three miles from the modern town of Carrara, amongst others were opened, as several contemporary remains have been found therein, which are now deposited in the "Accademia delle Belle Arti" at Carrara. One of the most noteworthy of these antiquities is a bas-relief of Jupiter with Bacchus. The quarries of the Canal Grande also produced stone in Roman times. In 1810 an inscription was discovered in the workings of Colonnata of the time of Tiberius, with the names of the consuls from the year 16 to 24 A.D., and those of the decurions of the place, and that of Hilarius, the superintendent of the workmen. But although Marmor Lunense became so well-known in the reign of Augustus, it was not until the time of Pliny that the merits of the finer sorts for statuary were discovered, and substituted by the sculptors of Rome for the marbles of Paros and Pentelicus. After the fall of the Empire the quarries were neglected until the twelfth century, when, the Republic of Pisa having taken possession of the district, the works were resumed, and furnished the material for Pisani and his disciples. One of the finest examples of ancient work in Carrara marble is the Apollo Belvedere, in the Vatican collection. We find the stone in a good state of preservation among the monuments of ancient Rome.

Marmor Coraliticum or Palombino is of ivory-like appearance, and is believed to have come from Phrygia. A marble which is dove-coloured, with delicate white patches, and which bears the latter name, is now quarried at Carrara.

Marmor Tyrium, or Greco Turchiniccio, is of bluish colour; the steps of Scala Santa are believed to be made of it. The name Turchinecchio is now applied also to certain stones found at Carrara, and at Seraggio, in Corsica,

which have a ground of deep clear blue with large semi-transparent white veins.

Marmor Lesbium, or Greco Giallognolo, is a yellowish marble, which came from the island of Lesbos; whilst Marmor Thasium, Greco Livido or Tasio, from the island of Thasos, was used in covering the tomb of Caius Cestius.

Marmor Hymettium, Imezio, or Cipolla, was so called from Mount Hymettus, near Athens, where it is found. It has a ground of dingy white, marked with bluish grey, with parallel veins resembling ribbons.

Marmor Porinum, or Grechetto Duro, a white marble, came from near Olympia, in the Peloponnesus. The Parian and Pentelic stones were described in dealing with ancient Greek marbles.

Of the veined marbles used by the Romans we may mention Marmor Carystium, Euboicum or Cipollino, from Carystus, in Eubœa, which stone is mostly green, or grey and white in waves, but sometimes red. The modern name, "Cipollino," is derived from *Cipollo*, an onion, by reason of the onion-like structure presented by the greenish, parallel, and apparently concentric veins in the whitish marble, due, Professor Rupert Jones says, to micaceous and chloritic planes of foliation in the metamorphic rock, which has been much twisted and crumpled during the change it has undergone. The monoliths for the temple of Antoninus and Faustina in Rome, the largest marble columns known, were obtained from Carystus. This stone was highly appreciated by the Romans, for we learn that in their capital alone 500 columns of it are still remaining. The plinths of Pœcile, Hadrian's villa, were also constructed of this material. Good examples may be studied in the British Museum, where there is a fine head of Æsculapius, and several pedestals in this marble. At the present day the term Cipollino is also applied to several different marbles bearing some resemblance to, if not in certain cases identical with, the material as worked in ancient times.

Marmor Jassense, or Porta Santa marble, was obtained from an island off Caria. Mr. Brindley discovered quarries of it in Chios, and he states that they are still workable. This marble is purplish red and white in wavy undulations. It is sometimes called Claudian, as the Emperor Claudius had a great liking for it. The name Porta Santa is derived from the circumstance that the jambs of the door-case of the Porta Santa at St. Peter's are made of it; the monoliths in the last-mentioned place and San Sebastien were also cut from the Porta Santa quarry.

Marmor Chium, or Affricano, is generally believed to have come from the Island of Chios, but this is very doubtful. There seems some difficulty also in reconciling the statement that it is a shell-marble, as we know it mostly as a brecchia. It is dove-coloured, pale pink, or green, with masses of black and crimson. The skirting of the so-called libraries at Caracalla's baths are of this material.

Marmor Synnadicum, from the town of Synnada, in Asia Minor, is also known by several other names, as Pavonazzetto, from its supposed resemblance in pattern to the plumage of a peacock; Dociminian, from the town of Docimia; Migdonian, from the province; and Phrygian, from the country in which it is found. Professor Aitchison, A.R.A. states* that Horace called this stone Phrygius lapis; Juvenal, Phrygia columna; and it was also mentioned by Strabo, Ovid, and Tibullus, being one of the best-known antique marbles. It is a white stone with red and purple veins, the best with purple patches, and the white is rather dingy. Another kind† exhibits bands of green in various shades, approaching a bluish or greyish tinge, and alternating with bands of pure white. These bands follow, for the most part, wavy contours, occasionally interrupted by sharp breaks. Half the large interior columns of the Pantheon are of it, and the marble being translucent, was used for glazing the chancel windows at San Miniato, Florence. Mr. Brindley re-discovered the quarries in 1889; they are sixteen in number, of immense size, and near each other.

Other veined Roman marbles, of lesser importance perhaps than the preceding, but mentioned by Corsi, are the Marmor Molossium, or Fior di Persico, from Epirus (Albania), white with veins and clouds of purple and crimson; Marmor Phengite, or Bianco e Giallo from Cappadocia; Marmor Corinthium, or Giallo Tigrato, from Corinth; Marmor Batthium, or Bigio Antico, from Cyrene (?), North Africa; Marmor Proconnesium or Cyzicum, or Bianco e Nero Antico (commonly known as Grand Antique,(?)), from the island of Proconnesus in the Sea of Marmora; Marmor Celticum and Rhodium. The last-mentioned, known also as Giallo e Nero, is said to have come from the island of Rhodes, but precisely similar material is found at Porto Venere, in the Gulf of Genoa. It is an exceedingly handsome stone, being black with gold coloured veins (iron pyrites).

Marmor Luculleum, or Bigio Morato, from the Island of Melas in the Nile, was first taken to Rome by the general, L. Lucullus, hence the name. This is remarkable as being the only known example where the name of the first user was applied to the stone. It is of a bluish-black tint. We learn that Scaurus imported 360 columns of the Lucullean marble, 38 ft. in height, for his temporary theatre; these were afterwards used in his house, the sewer contractor compelling him to give security for the possible damage to the sewers whilst they were being moved through the streets (Aitchison).

From quarries in the Sabine country, north of Rome, the Marmo di Cotanello was obtained. There are several tints of this marble, but it is mostly a pale rose verging on deep peach-blossom, the colours not being vivid, with thick and short veins of white—a most beautiful material.

* *Builder*, Vol. lvi. (1889), p. 163.
† Blagrove, "Marble Decoration," 1888, p. 97.

GENERAL BUILDING NEWS.

LLANGYNWYD.—The parish church of Llangynwyd, Glamorgan, which has fallen into a very dilapidated condition, is now undergoing complete restoration, including new nave and chancel roof in oak, oak seating and flooring. The peal of six bells are being rehung and tuned by Messrs. Warner & Co., of London. Mr. W. Clarke, of Llandaff, is the contractor. Messrs. Halliday & Anderson, of Cardiff and Llandaff, &c., are the architects. The same architects are undertaking the restoration of the parish church of Nicholaston, near Swansea.

NEW CHURCH AT BENTLEY, NEAR DONCASTER.—On the 29th ult., the foundation-stone of a new church to be erected at Bentley, near Doncaster, at the cost of Mr. C. E. S. Cooke, was laid by Lady Mary Cooke. The cost of the building, which is to be in the Gothic style, will be from 6,000*l.* to 7,000*l.*, exclusive of the site. The church will accommodate from 400 to 500 persons, and will consist of chancel and nave, with centre and side aisles. There will be a tower and spire. The architect is Mr. J. Codd, of London. The contract is in the hands of Messrs. Shillitoe & Sons, of Bury St. Edmunds. The church will be built of Derbyshire stone, and the site, also the gift of Mr. Cooke, covers one acre of land.

GARTH.—A church is in course of erection at Garth, near Maestey, Glamorgan, to accommodate about 200. Mr. W. Cox, of Llandaff, is the contractor. Messrs. Halliday & Anderson, of Cardiff and Llandaff, are the architects.

PUBLIC ROOMS, CAMBORNE.—The new Public Rooms in Trevenson-street, Camborne, the foundation-stone of which was laid last July by Sir George Trevelyan, were opened on the 29th ult. by Mr. C. A. V. Conybeare, M.P. The architect of the new buildings is Mr. Silvanus Trevail, of Truro, and the contract was let to Mr. J. Julian, of the same city, at 3,500*l.* The total length of the premises, which comprise rooms for a club and coffee tavern, as well as the great hall, is 112 ft., and the width 57 ft. There is seating accommodation in the hall for over 1,500 people. The whole of the walls, except the front, are of elvan, built with hydraulic mortar, with red brick dressings. The height of the building from the ground to the apex of the roof is 50 ft., while the walls are 34 ft. high. Ventilation is provided by Boyle's ventilators. On the ground floor is a suite of rooms, and over these is a public hall. Its height from the floor to the tie-rods of the roof is 22 ft. Its length from the wall to the front of the stage is 60 ft., and its width 35 ft. The stage is 18 ft. deep and 35 ft. wide. In front of it rises an elliptic proscenium arch, with a span of 25 ft., constructed of 14-in. brickwork and cement. The arch is decorated in white and blue. At the back of the arch, and out of sight of the audience, is a perforated 2-in. water-pipe, from which the stage can be deluged if fire should break out. Below the stage on either side are ladies' and gentlemen's dressing-rooms and lavatories, with separate staircases. The roof is open and is bordered in red deal, stained and varnished. Running round two sides and the end of the hall is a gallery. It is carried by wrought-iron girders, supported on iron columns. The seats are of pitch-pine, and are built on cast-iron standards. The hall is lit by means of fourteen windows on each side. The centrepiece of the front of the building on the ground floor is a shop, which may be used as a coffee tavern or restaurant, and has a kitchen attached. Leading back through the middle of the building from this shop is a corridor, on each side of which the club-rooms open. The fittings are in the Elizabethan style, worked in pitch-pine, and all the public parts of the building have a dado of 3 ft. 6 in. high running round the walls.

OPENING OF SCHOOL-BUILDINGS, ARMLEY.—A new Sunday-school, in connexion with the Whingate Wesleyan Chapel, Armley, Yorkshire, was opened on the 27th ult. The school has been built on a vacant piece of land adjoining the chapel, and contains a large schoolroom, infants' school, and five class-rooms. The large school is 52 ft. long and 36 ft. wide, and is connected with the chapel by a corridor 8 ft. wide. The room is lighted by windows at the top and bottom ends of the building, and also by a large window in the roof. School accommodation can be found for 470 scholars. The elevations are brick, with stone dressings, and the building is heated with hot water. The cost of the structure is 1,000*l.* The work has been carried out under the supervision of Mr. Fred W. Rhodes, architect, Wortley.

WESLEYAN CHAPEL, SETTRINGTON.—A new Wesleyan Chapel has just been opened at Settrington, near Malton, Yorkshire. Mr. C. H. Channon, architect, of Malton, designed the new chapel, which is of Gothic character, with high-pitched open-timbered roof. The seats, with open ends, are of pine, and will accommodate 150 people. At the entrance is a tiled porch, and inside is a screened vestibule with tiled floor.

BOARD SCHOOLS AT LOWER GORNAL, SEDGLEY.—On the 23rd ult. the new schools which have been erected at Red Hall, Lower Gornal, were opened by the Chairman of the School Board. The design for the building, which has been prepared by Mr. A. P. Brevitt, is on the class-room system, and the building is divided into five rooms. The external walls are of local red brick, with Gornal stone dressings, and terra-cotta introduced into the gables. The total cost, including the erection of a caretaker's house, is 2,800*l.* The work has been executed by Mr. H. Gough, of Wolverhampton, and accommodation has been provided for 280 children.

RE-OPENING OF CHAPEL, HAVERING, ESSEX.—The private chapel on the Pyrgo Park estate, Havering, after having been closed twenty years, has just been re-decorated and improved by direction of Mr. W. P. Gibb, of Pyrgo, and was re-opened on the 21st ult. Mr. Percy Roberts, of London, was the architect, and Messrs. Dowsing & Davis, of Romford, were the builders. Accommodation has been provided for 144 worshippers. The east end has been decorated, and over the altar is a picture by Dumont of the taking down of the Saviour from the Cross.

PRESBYTERIAN CHURCH, BALLYSILLAN.—A new Presbyterian church has just been opened at Ballysillan. The new building consists of the church proper, with school buildings adjoining. The structure is built with blue whinstone from a local quarry, finished with a rock face, and the jointing pointed with white cement, relieved with white glebe stone dressings. The style is Gothic, and the main front has two entrance doors, having columns with carved capitals, and moulded arches, with labels. Above these doors is a window of five lights, with moulded jambs and arches, and over this rises a gable, with moulded coping and finial. On each side are octagonal turrets, with carved finials, all of white stone. The aisles at each side of the main gable are surmounted with cutstone parapets, thrown into Gothic panels, with smaller pinnacles at angles. The side elevation is divided into six bays by buttresses, with white weatherings, and each bay is pierced with a triplet window. The school front is carried out in a similar manner to the church, having a large entrance-door, with three-light window over, and the whole surmounted by a gable with carved finial. The interior of the church is approached through a tiled vestibule, and the gallery is reached by two stairways. The pews are of pitch-pine, varnished. The platform is in pitch-pine and mahogany, with the lower part panelled. Behind the platform is a recessed arch, with columns and carved caps and moulded arch. The walls of the church are covered for a height of about 5 ft. with pitch-pine, and above this battened and plastered. The gallery is carried on iron columns, with moulded capitals, and these are continued up to carry the roof of the nave and aisles, the gallery front being divided into pierced panels, with a moulded rail on the top, all of pitch-pine. The ceiling of the nave is thrown into bays, with pitch-pine principals, having turned queen-posts, and is done in plaster, with moulded cornices all round, and ventilating panels in the centre. The ceiling of the aisles corresponds with the nave. The windows are filled with cathedral glass in lead quarries. The school buildings comprise a schoolroom, about 60 ft. by 30 ft., and over this are minister's rooms and a committee-room. The heating is effected by Musgrave's system of patent small-bore pipes, with the boiler in a concrete chamber under the church. Fresh air is admitted by Tobins' tubes, and foul air carried away through ventilators in the roof. The church will accommodate about 1,000 persons. The work has been carried out by Messrs. H. Laverty & Sons, Belfast, Messrs. Dean, of Carrickfergus, doing the plaster work under them, the whole being from the plans and under the superintendence of Mr. Samuel Stevenson, architect, Belfast.

SANITARY AND ENGINEERING NEWS.

THE LONDON WATER QUESTION.—The Select Committee on the London Water Bills met on Tuesday last to settle their Report. They recommend (according to the *Standard*) that the County Council shall have powers to spend money for the purpose of completing their inquiries into the subject, and that in case the Council become the Central Authority, they may act through a Statutory Committee jointly representative of themselves and of the City Corporation. The Council are to be placed under an obligation to purchase the works of the existing companies, and it is recommended that the terms on which the purchase is to be effected shall be the subject of inquiry by a Parliamentary Committee. The right of the Council to inquire into the question of the quality and sufficiency of the supply is recognised, and the Committee also favour the proposal that the Central Authority should have power to supply water in bulk to outlying districts.

SEWAGE DISPOSAL, ALNWICK.—The question of sewage disposal was brought before the members of the Alnwick Local Board of Health, at their usual fortnightly meeting, held in the Board-room on the 1st inst. The chairman, Mr. William Robertson, presided. Mr. Geoffrey Wilson, Town Surveyor, having submitted plans, sections, &c., which were approved by the Sewage Disposal Committee, it was unanimously agreed, after some considerable discussion, and on the motion of Ald. Adam Robertson, that the high-level scheme of sewage disposal be adopted. This scheme, it is estimated, will cost 2,500*l*. The Duke of Northumberland has offered 1,000*l*.

FOREIGN AND COLONIAL.

FRANCE.—The Service des Beaux-Arts will open a new competition in painting, next month, for the decoration of the Hôtel de Ville. It will include a large circular ceiling and two smaller ceilings for the Salle de Banquet, and eight designs for door-heads. ——M. Guillaume, architect to the Tuileries, is to complete shortly the laying out of the new garden to be formed on the site of the ruins of the Palace. Sixty-five thousand francs has been voted by the Government to complete the necessary work.——M. Dalou has been entrusted with part of the decoration of the Pantheon which had been commissioned from Chapu,—viz., the monument to the great orators of the Revolution. ——The Société des Gens de Lettres has called in M. Rodin to complete the statue of Balzac, commenced by Chapu.——As soon as possible after the commencement of the vacation the necessary work will be commenced for the reconstruction of the Ecole de Droit. M. Lheureux will be the architect for the work, which will cost about three million francs.——M. Bartholdi, who exhibited last year in the Salon the figures for the pedestal of the Gambetta monument at Ville d'Avray, has just completed the statue which will form the central figure, and which is now to be cast in bronze, and will probably be fixed about the close of the year. M. Larroumet, Directeur des Beaux-Arts, went last week to Sens to open the new museum in that town.——In consequence of the sale of the Duc d'Aumale's London property, all the pictures which had been shut up there have been sent to Chantilly, as well as the pictures from his former residence in Brussels.——A narrow-gauge railway is to be made shortly between Louhans and Tournus, with stations at Sornay, Bantage, Rancy, Jouvençon, Brienne, Cuiser, and Lacrost. A new railway line is also to be opened between Sancoins and Château Meillant.——The new "Pont du Midi" over the Rhone at Lyons has just been opened.——As a result of the examinations just terminated at the Ecole des Beaux-Arts, the diploma of "Architect du Gouvernment" has been bestowed on the following candidates: MM. Archambault, Godefroy, Loyau, Simon, Jost, Trouchet, Dussar, de Sevelinges, Masson, Mauber, Bersia, and Dubois. The number of architects holding this diploma is now 214.——The town of Rennes has recovered possession of the pictures of Teniers stolen from its museum in May last, and which represented a value of 150,000 francs. The pictures appear to have been sent back anonymously.——On the occasion of the National Fête, the decoration of the Legion of Honour will be conferred on MM. Demont, Doucet, Lagarde, Pelez, Paul Baudouin, and Saintin, painters; M. Peynot, sculptor, and M. Lecouteux, engraver.

BERLIN.—At last the managing committee of the International Art Exhibition has managed to publish a satisfactory catalogue to their show, and, moreover, have arranged it according to the order of hanging, instead of alphabetically according to the names of the artists,—the more customary way in North Germany.——The disturbances at the Royal Technical College have fortunately quieted down since the change of "Rectorship" took place.——A number of Belgian gentlemen interested in the new Brussels Ship Canal scheme have notified their intention of making a tour in North Germany for the purpose of studying the canal works and harbour arrangements. They will journey *viâ* Bremen, Hamburg, Stettin, and Lübeck, to Berlin, and then return by the southern route, *viâ* Frankfort-on-the-Main. Their proposed tour has been preceded by one through France.——The Colonel of the Paris "Sapeurs-pompiers," attended by two officers, is making a tour through Europe for the purpose of studying the fire brigade arrangements in the capitals and principal cities of the various countries. Berlin was visited last week. He is now *en route* to Vienna, Warsaw, Moscow, and St. Petersburg.——The "Kunstgewerbe Museum" has been enriched with an excellent collection of Byzantine tiles.——It is of interest to note with what rapidity new churches are springing up in the city since the present Emperor's coming to the throne. No fewer than twenty-three places of worship have been taken in hand within the last two years, the majority of which are already commenced. How the new churches will be filled when ready is still a matter of surmise. —— The official *Centrel-Blatt d. Bauverwaltung*, in a long technical essay on the railway-bridge accident near Bâle, states that 73 was the number of killed, and 131 the number of severely wounded. To these figures must be added the 11 declared "missing," of which number, however, only one can be positively proved to have been on the train at the time of the accident.——The railway scare continues here, in spite of the reassuring articles in the official and semi-official papers. What with the unfortunate accident to the Berlin excursionist train to Munich, and the several serious accidents in various neighbouring countries, this scare is not found very surprising.

MUNICH.—A competition has been opened for the purpose of obtaining designs for the laying-out of the proposed city extensions; 1,500 marks have been offered in prizes.

SWEDEN.—In 1883 invitations were issued for designs for a new building for the Northern Museum in Stockholm, and of the fifteen designs received from architects in Sweden, Germany, Austria, and England, seven were awarded prizes amounting to 200*l*. But none of these designs were found acceptable. The building committee then commissioned the late Prof. Isæus and Prof. Clason to prepare designs and plans, which the latter has now completed, and they will shortly be exhibited.——A handsome five-storied mansion has just been completed in Stockholm, in a portion of which is the chapel of the Russian Legation in the Swedish capital, outwardly indicated by the traditional onion-shaped Russian cupola, a mitre, and a cross, 16 mètres in height. The architect is Herr G. A. Fristedt. —— Another handsome addition to "modern Stockholm" is the new offices and depôt of the Höganäs Company, manufacturing porcelain, pottery, bricks, tiles, &c. It is five stories in height. The material used is granite and bricks of various colours, the style being that of the Gothic-Renaissance transition period. The architect is Herr Ludvig Peterson.——Prof. Julius Kronberg, the celebrated artist, has nearly completed the first of the four huge frescoes which are to ornament the ceiling in the vestibule of the Royal Palace. It is an allegorical representation of Svea, or "Sweden," during the Bernadotte era, the execution being said to be highly finished and artistic. The style adhered to by the artist is the allegorical style of the Italian and Flanders Renaissance.

DENMARK.—Work has been commenced on the so-called "Glyptotek," or art gallery, to be erected in Copenhagen by the Danish Mecœnas, Herr Jacobsen, a brewer. It will be situated in the central part of the town, with gardens in front. At first it was intended to have a cupola structure, but a flat roof has now been decided upon. The façade will be ornamented with six huge allegorical groups in bronze, three on each side of the main entrance, with a background of Belgian marble. This gallery will contain Chapu's two life-size statues of the Empress of Russia and the Princess of Wales, executed at the expense of Herr Jacobsen.——The work on the new Museum of Arts at Copenhagen, commenced two years ago, is progressing, and it is to be completed in 1893. The estimated cost is about 112,000*l*. It is to shelter the national collections of sculpture, paintings, and engravings. Terraces and steps on all sides will lead up to the exterior. The main entrance is 60 ft. in height and is flanked with detached columns of granite supporting symbolical figures of painting, sculpture, architecture, and engraving. Along the whole frontage runs a broad ornamental *frieze*, on which, with a golden background, are to be placed portraits of famous Danish artists, such as Thorvaldsen, Eckersberg, &c. The main entrance leads into a broad open ante-chamber, whence a gate leads into the vestibule, 50 ft. in height, having galleries around it. On the first floor the sculpture is to be arranged; the pictures will be hung in twenty-two rooms on the second-floor. The materials used for the building are bricks of light red-colour granite for the basement, with pilasters, friezes, and capitals of sandstone from the quarries in the island of Oland, in the Baltic.—— An important find has just been made in a peat bog at Hobro, in Jutland, consisting of a large sacrificial bowl of pure silver, quite 2 ft. in diameter, and thirteen large square silver plates, with figures in relief, representing incidents of Norse mythology. The articles, which weigh together 20 lbs., have been secured for the Museum of Northern Antiquities of Copenhagen, whither they will shortly be forwarded. A telegram to the *National-tidende*, of Copenhagen states that seven of the silver plates are ornamented with human figures, probably representations of gods, with eyes of glass, as well as smaller figures of men and animals. On a round dish, lying in the middle of the bowl, the image of an ox is chased, whilst five rectangularly-shaped plates of the same width, viz., 40 centimètres, and which probably have formed a kind of altar ornament, are chased with various figures of men and animals.

MISCELLANEOUS.

SCIENCE SCHOLARSHIPS: 1851 EXHIBITION.—Her Majesty's Commissioners for the Exhibition of 1851, assisted by a committee of gentlemen experienced in scientific education, have awarded sixteen Science Scholarships for the year 1891. The scholars named have been *bonâ-fide* students of science for at least three years, and were nominated for the Scholarships by the authorities of their respective universities or colleges. The Scholarships are of the value of 150*l*. a year, and are tenable for two years (subject to a satisfactory report at the end of the first year) in any university at home or abroad, or in some other institution to be approved of by the Commissioners. The scholars are to devote themselves exclusively to study and research in some branch of science the extension of which is important to the industries of the country. A Scholarship was offered to the University of Sydney, but the Council found themselves unable to nominate a suitable candidate. The following are the names of the recipients of the Scholarships, viz.:—Messrs. John Shields, University of Edinburgh; James H. Gray, University of Glasgow; William Frew, University of St. Andrews; John Joseph Sudborough, Mason Science College, Birmingham; Frederick Benjamin Fawcett, University College, Bristol; William McConnell, jun., Durham College of Science, Newcastle-on-Tyne; Harry Ingle, Yorkshire College, Leeds; Robert Holt, University College, Liverpool; Thomas Ewan, Owen's College, Manchester; Edwin H. Barton, University College, Nottingham; Annie J. Hoyles, Firth College, Sheffield; Franke Herbert Parker, University College of South Wales and Monmouthshire; Benjamin Moore, Queen's College, Belfast; Frederick William Dunn, Royal College of Science for Ireland; Percy Norton Evans, McGill University, Montreal; and William Huey Steele, University of Melbourne.

PLUMBING EXAMINATIONS.—The Bristol district council in connexion with the National Registration of Plumbers held an examination at the Merchant Venturers' School recently, when candidates attended from Bristol, Bath, and various parts of Gloucestershire and Wilts, and were examined in the theory and practice of the trade. Sixty per cent. of the candidates succeeded in passing the full examination qualifying for registration. The examiners were Mr. T. S. Pope, architect; Messrs. S. Sydenham (Bath) and J. H. Holbrook, master plumbers; Mr. T. J. Edmonds, journeyman; and Mr. Walter H. Perry, assistant hon. secretary.

THE SWEDISH TIMBER INDUSTRY. — It would appear that the agreement entered into between Swedish manufacturers of wood goods of reducing their output,—to which we have referred on previous occasions,—is already bearing good fruit, as this season the quantity of logs floated down the rivers of Sweden number over six millions less than 1890, being equal to a reduction in output of some 200,000 standards. This great decrease will, undoubtedly, cause a heavy rise in prices of Swedish wood goods next autumn and in 1892.

THE ENGLISH IRON TRADE.—There is very little, if any, alteration in the condition of the English iron market, which remains inactive, the quarterly meetings not having resulted in any fresh increase of business. In Middlesbrough pig there is rather more doing at a slight advance in quotations. Bessemer pig is 6d. lower on the week. Scotch pig is very quiet, and there is almost a cessation of business in the Glasgow warrant market. The manufactured iron trade remains dull, and Staffordshire common bars are 2s. 6d. lower on the week. Tin-plates are quiet; although many inquiries are afloat they do not result in orders. The steel trade is inactive. Shipbuilders and engineers continue fairly well employed. Coal is only in quiet demand.—*Iron*.

EXTENSION OF THE PORT OF ANTWERP.—The Belgium Government has appointed a committee for greatly extending the harbour-works, docks, &c., at Antwerp, at considerable cost. Although constructed only a few years ago, the present works are entirely inadequate to the demand. However, the engineering difficulties will be great, on account of the river sand accumulating just in this part of the Scheldt.

THE EAST-END DWELLINGS COMPANY (LIMITED).—The directors announce that the state of the company's accounts at the close of the half-year ending the 30th ultimo justifies them in declaring an interim dividend at the rate of 5*l*. per cent. per annum, free of income-tax, instead of at 4*l*. per cent., as has hitherto been usual at this period of the year. The Company has undertaken extensive building operations on the Cromer-street estate, and is raising additional capital.

COMPETITIONS, CONTRACTS AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised	Premium.	Designs to be delivered.
*Rebuilding Court House and Offices	Corporation of Cork	100*l.* 60*l.* 40*l.*	Aug. 28
*New Municipal Buildings	Corporation of Oxford	100*l.*	Oct. 31
*Public Library, Southampton	The Committee	50*l.* 25*l.*	No date

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Class-rooms, &c. Congregational School, Greenside, Pudsey	.....	C. S. Nelson	July 21
Manse, Handsworth Woodhouse	.....	Jas. Hall	do.
Additions to School Buildings, Lustleigh, Devon	.....	J. W. Rowell & Son	do.
*Stabling and Other Works, Kingsland-rd	Shoreditch Vestry	*Official*	do.
*Cleansing & Decorating Council Chamber, &c	Chelsea Vestry	do.	do.
Wooden Shelter, &c.	Salford Corp.	do.	do.
Church Institute and School, Sowerby Bridge	.....	Horsfall & Williams	do.
Farm Buildings, Kintrae, N.B.	.....	A. & W. Reid	July 22
Waterworks	Belper R. S. A.	R. Argile	do.
Farm Buildings, Lutterworth, Copston Magna, and Monks Kirby	H. H. Cave	.....	do.
Sewering, Kerbing, Paving, &c.	Birkenhead Corp.	T. C. Thorburn	do.
Road-metal and Kerbing	Houghton-le-Spring & Sunderland High. Bd.	D. Balfour	do.
Alterations to Malt-house, Morpeth	T. & R. Nicholson	Geo. Reavell, Junr.	do.
*Foundations, &c. Electric Lighting Station	Bristol U. S. A.	H. Williams	July 23
*Levelling Ground at S.E. Fever Hospital	Metropolitan Asy. Bd.	H. Jarvis & Son	do.
Extension of Weaving Shed, Wellington Mills, Bramley	.....	J. Kirk & Sons	do.
Road Metalling	Ystradyfodwg Loc. Bd.	J. W. Jones	do.
Road Improvements (Contract No. 2)	do.	do.	do.
Sewerage and Carriageways, Butetown	Cardiff Corporation	W. Harpur	do.
*Carpenters' Shop, &c. Gore Farm Hospital	Metropolitan Asy. Bd.	A. & C. Harston	July 24
*Construction of Sewers	Walthamstow L. B.	G. W. Holmes	do.
*Alterations, Ventilation, &c. Vestry Hall	Islington Vestry	J. Patten Barber	do.
Roads, Drains, Walling, &c.	.....	J. W. Rounthwaite	do.
*Erection of Business Premises	Cwmbach, &c. Co-operative Society	M. Morgan	do.
Street Works	Forres (N. B.) Police Commrs.	*Official*	do.
Main Drainage (Contract No. 7)	Queensbury Local Bd.	John Drake	July 25
Miners Hall, Boldon Colliery, Durham	Miners' Association	J. H. Morton	do.
Street Improvements	Barry and Cadoxton Local Board	J. C. Pardoe	July 27
*Inner Lining to Gasholder Tank	Sheffield Gas Light Co.	F. W. Stevenson	do.
Alterations and Additions to Schools, St. Denys	Southampton Sch. Bd.	E. T. Howell	do.

CONTRACTS.—*Continued.*

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
*Pulling Down and Removal of House, Stratford	West Ham Council	Lewis Angell	July 28
Road Metal	Runcorn Impt. Com.	*Official*	do.
School and Residence, Risca	Machen & Waen Fawr School Board	G. Rosser	do.
Additions to School, Blackwood	Bedwellty School Bd.	W. G. Griffiths	do.
Warehouse at Distillery, Balmenach, Elgin, N.B.	.....	Geo. Sutherland	July 29
*Painting and Distempering, Infirmary	St. Leonard (Shoreditch) Guardians	T. J. Smith	do.
Work at the Cumberland and Westmoreland Asylum, Garlands	.....	C. J. Ferguson	do.
Electric Lighting	Salford Corp.	Maxwell & Tuke	July 30
*Main Outfall Sewage Works	Ystradfodwg L. B.	J. W. Jones	July 31
Schools, Heavily, Stockport	.....	Paley, Austin, & Paley	do.
Road Works, Badenoch, N.B.	.....	Wm. Roberts	do.
*New Printing Works, Stratford	Great Eastern Railway	*Official*	do.
*Police Station, Superintendent's House, &c.	West Suffolk C. C.	do.	Aug. 4
*Norwegian Edge Kerb	Romford Local Board	do.	do.
*New Hall and Sunday School Rooms, Hertford	The Committee	James Farley	Aug. 5
School, Stuart-road	Devonport Sch. Bd.	Hine & Odgers	Aug. 6
*Brick and Pipe Sewers Works	Newport (I. of W.) C.	B. Latham	Aug. 17
Breakwater and Harbour Improvements, Port Ness, N.B.	Harbour Trustees	D. & T. Stevenson	Aug. 22
*Conversion of Theatre into Citadel, Ipswich	Salvation Army	W. Gillbee Scott	No date
*New Citadel and Cottages, Penge	do.	do.	do.
*Painting Works, Devonport	War Department	*Official*	do.
Additions to Savings Bank, Derby	Trustees	Naylor & Sale	do.
Street Works, Silloth, Carlisle	Holme Cultram L. B.	J. Graham	do.
Conservative Club, Failsworth, Oldham	J. Yeadon	C. T. Taylor	do.
Vicarage House, Stockton-on-Tees	.....	J. P. Pritchett	do.
*New Reading Rooms, New Swindon	G. W. R. Mechanics' Institute	B. Binyon	do.
Tramway, Open Cut, Drainage, &c. Brynmawr	Marquess Colliery	G. H. Daniel	do.
Chimney Stack, &c. Cardiff	T. V. Lloyd	.....	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary	Applications to be in
*Clerk of Works	Hove Commissioners	.....	July 23
*Building Inspector and General Assistant	do.	2*l.* 2*s.* per week	July 27
*Surveyor and Inspector of Nuisances	Corp. of Beverley	150*l.*	July 29
*Assistant in Furniture Branch	H. M. Works	.....	July 31
*Surveyor and Chief Sanitary Officer	Corp. of Chelmsford	230*l.*	Aug. 8

Those marked with an Asterisk (*) are advertised in this Number. *Competitions, p.* iv. *Contracts, pp.* iv., vi., *and* viii. *Public Appointments, p.* xx.

PROPERTIES FOR SALE.—By auction at the Mart:—1. Cors-y-Gedol, in Merionethshire, lying north of the Cader Idris range, and covering 5,050 acres. On the main estate, which includes Bodlyn Lake, stands a house of which the older portion was built, of stone, in 1570, and which contains some good oak-work. The gate-house bears date 1630, and is said to have been designed by Inigo Jones. 2. Stratton Audley, near to Bicester, Oxfordshire, 2,730 acres. The house was built about thirty years ago, and is now tenanted by Lord Chesham. The yearly rental is computed at 2,900*l.* This property was the residence of the first Lord Audeley, whose family settled here *temp.* Henry III. The ruins of the old castle were excavated some twenty years since. 3. The late Sir William Heathcote's estates, between Winchester and Romsey, in eleven lots, representing 3,000 acres in all, together with the sporting property of Fullerton (600 acres), near to Andover, providing fishing in the rivers Anton and Test. 4. The unexpired lease, having eighty years to run from last Christmas, of Willis's Rooms, St. James's, with Nos. 27–8, King-street, and premises at the rear, now used as the billiard-room of the Orleans Club. The gross rental of 1,248*l.* per annum is reduced, by parts being let off, to 803*l.* net. The reserve price, 12,500*l.*, includes all fines for renewal of the lease. The ground-floor has an area of upwards of 8,000 ft. superficial, with a frontage of 138 ft. to King-street. Of Willis's Rooms, formerly "Almack's," we gave a short account in a "Note" on August 31, 1889. 5. At Banbury, on the 22nd inst., Adderbury, 352 acres, with the Park Farm, by order of Mr. Justice North's Court, *in re* Eaton *v.* Eaton. This property, three miles distant from Banbury, gave a title to Henry Wilmot, its then owner, elevated Lord Wilmot of Adderley in 1644, and advanced Earl of Rochester in 1652. It passed from his son John, second Earl, the profligate and wit, to the Duke of Argyll, and from him to the Duke of Buccleuch, whose father, Earl of Dalkeith, had married Caroline, daughter and co-heir of John, second Duke of Argyll. The sale (at the Mart) of the Wimpole estate (to which we recently adverted) is fixed for August 5. The estate will firstly be offered in its entirety; if not so sold, in twenty-five lots, but if lot 1,—the Hall, park, and domain,—remain unsold, the other lots will be withdrawn.

FIFTY YEARS' MORTALITY STATISTICS IN LONDON.—The remarkably low rates of mortality that have been recorded in London in recent years suggested that the population was over-estimated, and the results of the recent census proved that this suggestion was to some extent warranted, as the old estimate for the middle of this year, based upon the rate of increase between 1871 and 1881, was more than a quarter of a million, or 6·4 per cent., in excess of the new estimate based upon the population enumerated at the recent census. This error of estimate has caused an understatement of the death-rate in recent years, which reached its maximum in 1890, and it is well to ascertain what this maximum of error was. The death-rate in London last year, according to the Registrar-General's Annual Summary, published a month or two since, was 20·3 per 1,000; whereas, on the assumption that the rate of increase of population in the metropolis was equal throughout the ten years, it may be calculated that the true death-rate in 1890 was 21·8, or 1·5 above the rate based upon the over-estimated population. The error in the published rates in each preceding year was of course smaller, and, after due correction, the mean rate for the ten years 1881-90 was 20·5 instead of 19·9, as published in the last Annual Summary. The death-rate in London, as was the case with the death-rate in the whole of England and Wales, was practically stationary during the thirty years 1841-70; it was 24·8 in 1841-50, 23·7 in 1851-60, and 24·4 in 1861-70. In the following ten years, 1871-80, however, the rate fell to 22·5, showing a decline of 7·9 per cent. from the rate in the preceding ten years; and in the most recent decennium the rate further fell to 20·5, showing a further decline of 8·9 per cent. The rate during the last decennium declined from 21·5 in 1882 to 18·3 in 1889, but rose again in 1890, under the influence of the epidemic of influenza, to 21·8. It is worth noting that if we divide the last twenty years, during which the decline in the death-rate has been so marked in London (as in the other large English towns), into quinquennial periods, the decline of mortality appears to have been steadily maintained; the mean death-rate in these four quinquennial periods has been 22·9, 22·2, 20·9, and 20·0 per 1,000 respectively. Such a continuous decline in the mortality of the largest city of the world, with its large proportion of helpless poor, may safely be regarded as affording conspicuous evidence of sanitary progress. The corrected mean death-rate in London during the ten years 1881-90 was no less than 2 per 1,000 below the mean rate during the same period in the twenty-seven large provincial towns dealt with in the Registrar-General's weekly return.—*Lancet.*

THREE INTERESTING NORSE CHURCHES.—Two old Norse churches at Hoprekstad and Hove, in the well-known Sognefjord, on the west coast of Norway, having been threatened with destruction, in order to make room for new edifices, have been purchased, the former by the Society for the Preservation of Norwegian Historical Memorials, and the latter by a Bergen architect, and both have now been restored as far as possible in accordance with their original appearance by the architect referred to, Herr P. Blix. In their restoration all disfiguring additions to and alterations of the original designs have been carefully removed. Hoprekstad Church is said to be the largest of the Norse wooden churches in the country, and contains some interesting specimens of carved woodwork. However, Hove Church is, perhaps, the more interesting, it being one of the very few Norse stone churches now remaining in the country. It is built of hewn stone, but the ground-plan is the same as that of the wooden churches dating from the same period—viz., having a long rectangular nave, with a small rectangular choir ending eastward in an apse, whilst at the western extremity is a tower and belfry. Both buildings are easily reached from the coast by pedestrians. A third interesting wooden church, dating from the same period, is that of Urnæs, on the opposite side of the fjord, also restored by the society referred to. It contains some fine and curious wood-carvings.

PENCILS.—Messrs. E. Wolff & Son send us some specimens of their "toughened lead" pencils, the material being, according to their description, a graphite which has been subject to a process of tempering which gives it extra strength. The pencils, as far as we have used them, certainly appear to break less in cutting than many others, and are good to work with in other respects.

LEGAL.

LIGHT AND AIR CASE:

JENNINGS *v.* NURSE.

THIS was an action, tried in the Queen's Bench Division last week, brought by the well-known wooden-letter maker at 263, High Holborn, to recover damages for injury to the light of his workshop in rear of his premises by the erection of a building by the defendant.

Messrs. H. H. Bridgman, S. Goss, and E. A. Gruning were surveyors for the plaintiff, and Messrs. R. J. Worley, G. Edwards, and H. Lovegrove for the defendant.

Verdict for the plaintiff, damages 250*l.* and costs.

ALLEGED INFRINGEMENT OF COPYRIGHT IN A TRADE CATALOGUE:

ECKSTEIN *v.* THE ST. PANCRAS IRONWORKS COMPANY.

THIS was an action brought in the Chancery Division of the High Court of Justice for an injunction to restrain infringement of copyright in a trade catalogue issued by Messrs. Hayward Brothers & Eckstein, of Union-street, Borough, manufacturers of pavement-lights, &c., against the St. Pancras Ironwork Company, of St. Pancras-road.

The hearing of the case occupied Mr. Justice Kekewich for four days, and his Lordship, at the conclusion of the reply on behalf of the plaintiff, gave judgment last week.

Having reviewed the evidence as to the alleged copying of diagrams, he concluded his judgment as follows:—

What the merits, of course, of the two rival traders are I know not, and am not concerned with

at all. But I think that notwithstanding that a very strong case was opened, full examination has shown that the plaintiffs were unduly alarmed; that there has been nothing here in the way of dishonesty, and that there being no dishonesty the Court cannot interfere. The result is that, without going into the questions of law, I find on the question of fact in favour of the defendants, and the usual result must follow.

CAPITAL AND LABOUR.

THE LOCK-OUT OF CARPENTERS AND JOINERS IN LONDON.—The deadlock still continues, and there is nothing to say in regard to the matter, except that the statement made in Thursday's *Daily Chronicle*, "that a meeting of the masters has been called to consider the question of a lock-out of all trades," is entirely without foundation.

MEETINGS.

SATURDAY, JULY 18.

Architectural Association.—Vacation Visit to Cambridge.

St. Paul's Ecclesiological Society.—Visit to the churches of Great Bookham and Little Bookham, under the direction of Major Heales, F.S.A.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

8,839.—WINDOW FASTENING: *J. Burde.*—To give a secure fastening to prevent rattling and draught through badly-fitting sashes are the objects of the fastening which is the subject of this invention, and which, devised with a slotted arm-piece, engages with a catch specially constructed, and fastens by pulling down the arm over the catch.

10,918.—GRINDING AND MIXING CEMENT: *N. W. Curtis and Another.*—This invention consists in a combination of an edge-runner crushing-mill placed within a tank wherein the materials are thoroughly mixed together with water by means of moving arms or paddles, a grinding-mill; and pumps for withdrawing the mixture or "slurry," and the delivering it to the drying-bed.

11,932.—VENTILATING AND COOLING: *F. Fayod.*—According to this invention, sprays cooled by ice-boxes are used in the form of three arms with syringes in the outer arm and ice-cases in the middle one; or a conduit is placed in a case of serpentine construction with pieces of ice about it to cool the air.

19,726.—PANELLING OR FENCE: *C. R. Bonne.*—According to this patent, wooden upright laths are laced or bound together by wire; or metal uprights are used, but with wire springs to allow for the contraction and expansion of the metal.

7,567.—CONVERTIBLE WINDOW-SASHES: *R. W. Martin and Others.*—To enable the sashes to be turned into the room, arrangements are made for (1) quickly removing the side beads, (2) unhooking the cord of the sash-weight, (3) sliding the sash up or down upon vertical bars or tubes, fixed in the side of the sash, and (4) swinging the sash inwards by means of a hinged action derived from their being pivoted on the vertical tubes.

7,749.—SASHES FOR HOT-BEDS, &c.: *J. F. Longnecker.*—The object of this invention is to make a stronger sash than usual, and to protect the points of the sash frame from rotting. The sash is made of wood, with metallic corner-pieces on the level of the top and bottom of the rebate in the side and end bars, so that they lie mainly under the glass of the sash.

NEW APPLICATIONS FOR PATENTS.

June 29.—11,013, C. Lewin, Safety Fastenings for Window-sashes, &c.

June 30.—11,070, D. Rylands, Manufacture of Glass.—11,101, M. Syer, Syphon Water-waste Preventer.—11,102, J. Parker, Window-sashes, &c.—11,115, W. Trebilcock, Adjusting Skylights and securing same in position.—11,148, J. Freyberg & C. Driver, Ball Castors.

July 1.—11,154.—R. Sudden, Chimney-cowl and Ventilator.—11,165, C. Armstrong, Salt-glazing of Sanitary Ware.—11,175, S. Robson, Asbestos Flap Ventilator.—11,179, G. Mulhall, Stencilling Apparatus.—11,205, H. Chappell, Machines for Pressing and Moulding Plastic Materials.—11,209, H. Aitken, Treatment of Stone, Brickwork, Plaster or Stucco, &c., for preventing deterioration.—11,222, G. Mason, Sash-fastener.—11,233, T. Elcoate, Sash-fastener.

July 2.—11,231, D. McDonald, Wall-cope.—11,239, J. Parkinson and Others, Ladders and Trestles.—11,259, E. Sorel, Manufacture of Bricks, &c.—11,263, E. Vaughan, Stair-tread.

July 3.—11,312, T. Dunn, Window Sash-lifters or handles.—11,314, C. Horton, Flushing Tanks.—11,359, S. Houghton, Sen., Coping Brick for roofs of buildings.—11,360, A. Foster, Door-locks and Catches.—11,410, D. Hasselman, Exhaust Ventilator.

PROVISIONAL SPECIFICATIONS ACCEPTED.

7,616, T. Bury, Vertical Sanitary Pipe Pressing Machines for making Bricks, &c.—8,234, E. Davis and T. Baldwin Joint for coupling Pipes and other articles.—8,287, J. Hodgson and E. Sheard, Coating the surfaces of Walls and Buildings with Sand or other similar material.—8,639, A. Lespagnol, Safety Bolts for Doors, &c.—8,690. E. Woakes, Jointing thin Metal Pipes.—8,713, T. Simmons, A Washable and Varnishable Substitute for Oil Paints and Distempers.—8,749, E. Burnet and W. Groom, Testing Drains or Soil-pipes.—9,017, H. Davidson, Sash-fasteners for Windows, &c.—9,028, J. Shaw, Window Sash-fastener to prevent the shaking of the sashes, and to allow the sashes to be open for ventilation and still be secure.—9,039, W. Burnett and A. Rea, Door-handles.—9,831, E. Russ, Window Sash-fasteners.—9,878, J. Gordon, Sash-fasteners.—9,896, E. Barnes, Sash-fasteners.—9,912, J. White, Window-fasteners.—9,941, H. Mills, Sash-fasteners.—10,029, B. Madler, Door Pivots.—10,059, A. Grimshaw and T. Jones, Sash-fasteners.—10,155, J. Morris, Sash-fasteners.—10,247, B. Giraud, Paving and Draining the Stalls and Passages of Stables, Loose Boxes, and Lairs for Horses, for Pigsties, &c.—10,395, J. Morris, Roofing-tiles.—10,407, J. and A. Duckitt, Paving for covering Roadways or Streets.—10,477, A. Carter, Facilitating the Removal of Window-sashes from their frames and replacing the same therein.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to Opposition for Two Months.

7,885, C. Blount and Others, Translucent Cloisonne Enamel.—8,959, J. Dunba and J. Nichols, Window Sash-fasteners.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

JULY 6.—By *H. Scruton*: Two f. cottages and land, Dagenham, r. 33*l.* 18s., 635*l.*; 11 and 12, Modbury-st., Kentish Town, u.t. 58 yrs., g.r. 12*l.*, 475*l.*; 14, Modbury-st., u.t. 58 yrs., g.r. 6*l.*, r. 30*l.*, 250*l.*—By *A. Rumball*: "Laurel Bank," Colney Hatch-lane, Muswell Hill, f., r. 50*l.*, 950*l.*; f.g.r. of 21*l.*, Colney Hatch-lane, with reversion in 9 yrs., 1,100*l.*; c.g.r. of 8*l.* 10s., Barnsbury-st., Islington, with reversion in 33 yrs., 170*l.*—By *Slade & Butler*: 50, Ainger-rd., Primrose Hill, u.t. 73 yrs., g.r. 8*l.* 10s., r. 45*l.*, 350*l.*—By *P. Hodson*: 11A, Myddelton-sq., Clerkenwell, u.t. 20 yrs., g.r. 6*l.*, r. 75*l.*, 540*l.*—By *A. Nickerson*: 82, 83, and 84, Britannia-rd., City-rd., f., r. 134*l.* 11s., 610*l.*—By *A. Chancellor*: 8 and 9, Claremont-rd., Twickenham, u.t. 89 yrs., g.r. 20*l.*, r. 72*l.*, 520*l.*

JULY 7.—By *S. Single*: F. cottage, Horn-lane, Woodford, 290*l.*—By *Glover & Harrison*: 100 to 108 (even), Richmond-rd., Kingston-on-Thames, f., r. 125*l.*, 2,000*l.*; 32, Clifton-gdns., Paddington, u.t. 58 yrs., g.r. 6*l.* 10s., 645*l.*; 5, Auckland-rd., Old Ford, f., r. 31*l.* 4s., 290*l.*—By *Messrs. Cronk*: "Leaves Green Farm," near Keston, 459a. 0r. 29p., f., 10,100*l.*—By *Woods & Snelling*: 82, High-street, Sutton, f., r. 35*l.*, 420*l.*; f. barn, stabling, and outbuildings, Eltham, 650*l.*—By *Mullett, Booker, & Co.*: No. 49, Montague-square, and stabling, u.t. 10 yrs., g.r. 31*l.* 10s., r. 250*l.*, 1,420*l.*; 28, York-st., and stabling, u.t. 3¾ yrs., g.r. 16*l.* 16s., 200*l.*—By *Debenham, Tewson, & Co.*, 8, Holland Villas-rd., Kensington, f., 5,400*l.*; "Hawthorne Bank," Hornsey-lane, Highgate, u.t. 76 yrs., g.r. 20*l.*, 1,700*l.* By *Osborne & Mercer*: "Farleigh Castle," near Trowbridge, and 914a. 1r. 34p., with the manor advowson and next presentation to Farleigh Hungerford, 39,000*l.*; "Chatley Farm," 101a. 2r. 7p., f., r. 105*l.* 16s., 3,050*l.*; numerous enclosures of land, 91a. 3r. 16p., f., 2,985*l.*—By *C. W. Davies*: 11 to 16, Almedia-street, Islington, u.t. 40 yrs., g.r. 42*l.* r. 298*l.*, 2,270*l.*; 74, Britannia-row, profit rental of 35*l.*, u.t. 35 yrs., 385*l.*; 19, Prebend-st., u.t. 35 yrs., g.r. 6*l.*, r. 45*l.*, 320*l.*; 7, Cardwell-ter, Holloway, u.t. 75 yrs., g.r. 7*l.* 7s., r. 55*l.*, 475*l.*; 96 and 98, Riversdale-rd., Highbury, u.t. 79 yrs., g.r. 10*l.*, r. 78*l.*, 575*l.*; f.g.r. of 5*l.*, Riversdale-rd., with reversion in 79 yrs., 440*l.* By *Messrs. Cobb*: "The Queen's Arms House," and 3a. 2r. 22p., f., Appledore, 520*l.*; encloures of f. land, 18a. 0r. 7p., 1,080*l.*; a plot of land, 1a. 1r. 6p., Kennardington, 30*l.*; enclosures of f. land, 30a. 2r. 36p., 850*l.*

JULY 8.—By *Moss & Jameson*: 69, Priory-rd., f., Hampstead, 2,500*l.*—By *John Dawson & Son*: "Ormley Lodge," Ham Common, with stabling, f., 4,600*l.*—By *Protheroe & Morris*: 4, 5, and 6, Whitehall-lane, Woodford, f., r. 150*l.*, 1 470*l.*; residence, "Rosebank," f., 520*l.*—By *Deverall & Co.*: 1, Thornhill-sq., Barnsbury, u.t. 54 yrs., g.r. 7*l.*, r. 52*l.* 10s., 515*l.*; 60 to 68 (even), Longfield-st., Wandsworth, f., 415*l.*; 2 and 4, Fullbrook-rd., Holloway, u.t. 65 yrs., g.r. 12*l.*, r. 97*l.*, 950*l.*; 2, 4, and 6, Wightman-st., Plaistow, u.t. 93 yrs., g.r. 15*l.* 15s., 90*l.*

JULY 9.—By *Bance, Talbot, & Co.*: f.g.r. of 217*l.* 9s. 4d., u.t. 27 yrs, g.r. 44*l.* 1s., Islington, 2,070*l.*—By *Chesterton & Sons*: 12, Campden House-mews, Campden-hill, u.t. 52 yrs., no g.r., 310*l.*—By *Beadel & Co.*: "Devonshire House and Lodge," Balham, six residences and a nursery ground, f., 19,600*l.*; "The Newsams" and four houses, about 9a. 2r. 25p., Stamford-hill, f., 12,300*l.*; Kennington-rd., copyhold g.r. of 42*l.* 10s., u.t. 41 yrs., 1,000*l.*—By *C. C. & T. Moore*: 34 and 36, Dunk-st., Mile-end, f., 805*l.*; 45, St. Peter-st., u.t. 39 yrs., g.r. 3*l.* 8s., r. 32*l.*, 270*l.*; 297, Cable-st., St. George's-in-East, u.t. 41 yrs., g.r. 15*l.*, r. 35*l.*, 100*l.*; "Laburnham Cottage," Cobden-rd., Leytonstone, f., 300*l.*—By *E. Wood*: 12, Newlands-ter., Beckenham, u.t. 90 yrs., g.r. 6*l.* 2s., 240*l.*—By *E. Stimson*: 20, 21, and 22, Merrick-sq., Southwark, u.t. 34 yrs., g.r. 12*l.* 12s., r. 124*l.*, 900*l.*; 24, Merrick-sq., u.t. 34 yrs., g.r. 11 0s. 6d., r. 42*l.*, 350*l.*; Nos. 194 and 196, Clapham-park-rd., f., r. 70*l.*, 1,400*l.*—By *John Lees & Burchell*: Residence, "Wickhams," Hayward's Heath, dairy farm and 158a. 0r. 23p., f., 4,125*l.*; two enclosures of f. land, 5a. 2r. 38p., 230*l.*; enclosure of f. land, 10a. 2r. 30p., 660*l.*; Essenden-rd., Caterham, a plot of f. land, 0a. 2r. 37p., 140*l.*—By *Montagu & Robinson*: 3 to 8, Cossey-villas, Clapton, f., r. 140*l.* 8s., 750*l.*; 9, 11, 19, 21, and 26, Shelgate-rd., and 83, Mallinson-rd, Clapham, u.t. 77 yrs., g.r. 33*l.*, 935*l.*; 56, 58, 70, and 72, Mallinson-rd., u.t. 77 yrs., g.r. 24*l.*, 730*l.*; 64 and 66, Mallinson-rd., f., 630*l.*; 8 to 16, Bennerley-rd., u.t. 77 yrs., g.r. 27*l.*, 960*l.*; 22, 26, 28, 34, and 36, Bennerley-rd., u.t. 77 yrs., g.r. 30*l.*, 910*l.*; 33 to 39 (odd), Bennerley-rd., u.t. 78 yrs., g.r. 24*l.*, 665*l.*; 55, 57, 67 to 77 (odd), Bennerley-rd., u.t. 77 yrs., g.r. 48*l.*, 1,290*l.*; 93 to 103 (odd), Bennerley-rd., u.t. 77 yrs., g.r. 36*l.*, 1,035*l.*; 8, Salcott-rd., u.t. 77 yrs., g.r. 6*l.*, 210*l.*; 13 to 16, and 18, Salcott-rd., u.t. 77 yrs., g.r. 18*l.*, 950*l.*; 20, 26, 28, and 30, Salcott-rd., u.t. 77 yrs., g.r. 24*l.*, 675*l.*—By *Farebrother, Ellis, & Co.*: 20, Lambourn-rd., Clapham, u.t. 52 yrs., g.r. 6*l.*, 210*l.*; 9, Liston-rd., u.t. 76 yrs., g.r. 6*l.*, r. 40*l.*, 400*l.*; "The Orchard," f. residence, Egham Hill, r. 90*l.*, 1,205*l.*—By *Newbon & Co.*: 121, Tavistock-cres., Westbourne Park, f., 500*l.*; l.g.r. of 66*l.* 10s., u.t. 55 yrs., the Broadway, &c., Dalston, 1,200*l.*; l.g.r. of 65*l.*, Albion-rd., u.t. 52 yrs., 1,175*l.*; 149, 151, and 153, Goldsmith-row, Hackney, f., and 63 to 73 (odd), Doves-row, and 6, Hay-st., 2,475*l.*; 9, Tabley-rd., Holloway, u.t. 75 yrs., g.r. 3*l.* 10s., r. 38*l.*, 380*l.*; 63 and 67, Hungerford-rd., u.t. 69 yrs., g.r. 4*l.*, 960*l.*; 4 to 10, Upper North-st., King's Cross, u.t. 52 yrs., g.r. 24*l.*, r. 104*l.*, 900*l.*; 75, Highgate-hill, Holloway, f., r. 30*l.*, 620*l.*; 79, 81, 97, and 99, Highgate-hill, f., r. 110*l.*, 2,010*l.*

JULY 10.—By *R. Reid*: F. land, Harpenden, Herts, 6a. 0r. 31p., 950*l.*; a plot of land, near the above, 2a. 2r. 5p., 375*l.* By *Alderton & Co.*: F.g.r. of 70*l.*, King's-rd., Clapham-park, with reversion in 33 yrs, 3,810*l.*; f.g.r. of 2*l.*, with reversion in 42 yrs., 330*l.*; f.g.r. of 20*l.*, with reversion in 43 yrs., 800*l.*; f.g.r. of 5*l.*, Atkins-rd., with reversion in 33 yrs., 300*l.*; f.g.r. of 30*l.*, with reversion in 43 yrs., 1,150*l.*

[*Contractions used in these lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.]

PRICES CURRENT OF MATERIALS.

TIMBER.		
Greenheart, B.G. ton	8/0/0	9/0/0
Teak, E.I... load	8/0/0	14/0/0
Sequoia, U.S.ft.cu.	2/3	3/0
Ash, Canada load	2/5/0	4/0/0
Birch, do.	2/5/0	4/5/0
Elm, do.	3/5/0	4/15/0
Fir, Dantsic, &c.	2/0/0	3/10/0
Oak, do.	2/10/0	4/10/0
Canada.....	4/17/6	6/10/0
Pine, Canada red	2/10/0	3/10/0
Do, yellow	2/0/0	5/0/0
Lath, D'ntsic, fath	5/0/0	6/0/0
St. Petersburg	5/0/0	7/0/0
Deals, Finland, 2nd & 1st std 100	7/15/0	10/0/0
Do, 4th & 3rd..	7/5/0	8/5/0
Do. Riga	6/5/0	7/15/0
St. Petersburg, 1st yellow ..	9/15/0	14/0/0
Do. 2nd yellow	8/5/0	9/5/0
Do. white	6/15/0	10/0/0
Swedish	6/15/0	15/10/0
White Sea	8/5/0	17/0/0
Canada, Pine 1st	12/10/0	24/0/0
Do. do. 2nd....	9/0/0	15/10/0
Do. do. 3rd, &c.	6/10/0	10/0/0
Do. Spruce. 1st	8/0/0	10/10/0
Do. do. 3rd & 2nd.....	6/0/0	7/10/0
New Brunswick	5/5/0	7/5/0
Battens, all kinds	3/10/0	15/10/0
Flooring Boards, sq., 1 in. prep. 1st	0/10/0	0/13/6
Do. 2nd.....	0/9/0	0/10/6
Other qualities	0/4/6	0/7/6
Cedar, Cuba ..ft.	/4	/4½
Honduras, &c.	/4	/4½
Mahogany, Cuba.	/4½	/6½
St. Domingo, cargo av	/4½	/6½
Mexican do. do	/4½	/5
Tobasco do. do	/5½	/7
Honduras do..	/5½	/6½
Box, Turkey ton	4/0/0	13/0/0
Rose, Rio.....	10/0/0	20/0/0
Bahia	9/0/0	18/0/0

TIMBER (*continued*).		
Satin, St. Domingo .....ft.	0/0/10	0/1/3
Porto Rico	0/0/10	0/1/6
Walnut, Italian..	0/0/3½	0/0/7
METALS.		
IRON—Bar, Welsh, in London..ton	6/5/0	6/15/0
Do. do. at works in Wales	5/15/0	6/5/0
Do. Staffordshire, in London	6/5/0	7/0/0
COPPER—British, cake and ingot	58/10/0	59/0/0
Best selected ..	59/10/0	60/10/0
Sheets, strong..	68/0/0	0/0/0
Chili, bars	54/17/6	55/15/0
YELLOW METAL lb.	0/0/6	0/0/6½
LEAD—Pig, Spanish ....ton	12/5/0	12/7/6
English, com. brands	12/10/0	12/12/6
Sheet, English, 3 lbs. per sq. ft. and upwards ..	14/10/0	0/0/0
Pipe	15/0/0	0/0/0
ZINC—English sheet .....ton	27/0/0	0/0/0
Vieille Montagne.....	27/10/0	0/0/0
TIN—Straits	91/17/6	92/7/6
Australian	92/7/6	92/17/6
English Ingots	94/10/0	0/0/0
OILS.		
Linseed .....ton	21/7/6	21/10/0
Cocoanut, Cochin	32/0/0	33/0/0
Do. Ceylon	27/6/0	28/0/0
Palm, Lagos	23/10/0	0/0/0
Rapeseed, English pale	30/0/0	30/5/0
Do. brown	28/10/0	0/0/0
Cottonseed ref...	20/15/0	0/0/0
Oleine	21/15/0	24/0/0
Lubricating, U.S.	5/0/0	6/0/0
Do. refined	8/0/0	12/0/0
TAR—Stockholm barrel	0/19/6	1/0/0
Archangel	0/13/6	0/0/0

TENDERS.

[Communications for insertion under this heading must reach us *not later than* 12 *noon on Thursdays.*]

CANNOCK (Staffordshire).—For the erection of a fire-station at Cannock, for the Cannock Local Board. Mr. John Peake, Surveyor, Cannock:—

Robt. Earlow	£184	John Reynolds, Cannock* ..	£175

* Accepted.

CANNOCK (Staffordshire).—For the construction of sewerage works at Bridgtown, Cannock, for the Cannock Local Board. Mr. John Peake, Surveyor, Cannock:—

Harry Earl, Melbourne, Derby	£306 8 4

CARDIFF.—For the erection of about 100 yards of boundary wall in Penylan-road, for the Corporation. Mr. W. Harpur, C.E., Townhall, Cardiff. Quantities by Borough Engineer:—

G. Beames.....	£537 16 4	H. Lewis	£417 6 7
J. Robbins	475 7 6	James Allen.....	416 15 0
E. Brown	451 6 9	H. Davies, Cardiff (accepted).....	365 14 1
H. Gibbon.....	439 10 8		

DARTFORD (Kent).—For re-erection of two recreation-rooms, at Gore Farm Hospital, for the Metropolitan Asylums Board. Messrs. A. & C. Harston, architects, 15, Leadenhall-street, E.C.:—

W. Johnson & Co., Limited	£900	Knight, Sidcup (accepted) ..	£729

GRIMSBY.—For fittings for Turkish bath at Grimsby. Mr. J. J. Creswell, architect, Victoria-chambers, Grimsby:—

John Smeaton, Son, & Co.	£380 0 0
Jeffs Bros.	365 0 0
Great Grimsby Co-operative Box and Fish Carrying Co., Grimsby (accepted).....	350 0 0
Calvard & Strachan.....	342 0 0

HOVE (Brighton).—For the erection of a new ward-block at the hospital, Haugleton Bush, Portslade, for the Hove Commissioners. Mr. H. H. Scott, Surveyor, Town-hall, Hove, Brighton:—

R. Humphry & Sons*	£2,729 9 9	W. H. Sawle.....	£2,224 0 0
G. R. Lockyer	2,662 0 0	P. Peters	2,100 0 0
C. & F. Cheesman ..	2,440 0 0	J. J. G. Saunders, Brighton†	2,099 17 0
J. Longley & Co.	2,382 0 0	C. E. Kemp, Brighton*.....	2,056 10 0
J. Parsons & Son	2,300 0 0		
W. Wallis	2,292 0 0		

* Informal. † Accepted.

LEAVESDEN (near Watford).—For heating-coils to two drying closets at the Leavesden Asylum, for the Metropolitan Asylums Board. Messrs. A. & C. Harston, architects, 15, Leadenhall-street, E.C.:—

Potter & Son	£169 0	Bradford & Co., High-Holborn (accepted)	127 10
J. May.....	140 0		

LONDON.—For alterations and repairs at the "Mildmay" Tavern, Ball's Pond-road, N., for Mr. C. H. Belsey. Messrs Saville & Smith, architects, 86 & 87, Strand, W.C.:—

Roberts	£1,614	Gould & Brand.....	£1,463
Yardley & Sons	1,598	Dearing & Son*	1,260
Pearce & Co.	1,509		

* Accepted.

LONDON.—For improvement works, Plumstead-road and High-street, for the Board of Works for the Plumstead District. Mr. W. G. Forder. C.E., Surveyor to the Board:—

Turner, Son, & Evanson	£23,367 2 7	Woodham & Fry ..	£22,450 0 0
Nowell & Robson ..	23,077 7 7	Rackham & Bentham*	21,325 0 0
Carey & Son	22,948 17 2	Mowlem & Co.*	21,105 0 0
Griffith	22,603 17 8		

* The tender of Messrs. Mowlem & Co. was accepted (conditionally) for about two-thirds of the work, and that of Messrs. Rackham & Bentham (conditionally) for the remainder, less 7½ per cent. below prices quoted in their tender.

LONDON.—For painting and other works at the Infirmary, Caleston, Chelsea, for the Guardians of Chelsea. Messrs. A. & C. Harston, architects, 15, Leadenhall-street, E.C.:—

F. G. Minter.....	£894 0 0	G. Foxley	£488 0 0
Rowe Bros.	748 0 0	G. Searle	485 0 0
G. Smith	650 0 0	J. Dorking	450 0 0
W. F. Picken	550 0 0	G. Wade, Flood-street, Chelsea (accepted)	425 0 0
Stewart & Co.	540 6 8		

LONDON.—For painting and other works at the Infirmary, Harrow-road, Paddington, for the Guardians of Paddington. Messrs. A. & C. Harston, architects, 15, Leadenhall-street, E.C.:—

Hilder & Co.	£1,703 0 0	W. Dudley	£585 15 0
W. E. Jaques	957 12 0	G. Smith	530 0 0
Oetzmann & Co.	790 0 0	Geo. Foxley, King-st., Regent-st, (accepted).	355 0 0
Akers & Co.....	712 0 0		

LONDON.—For additions, consisting of new Female and Male Staff Blocks, additional story to Administrative Block, nurses' dressing-room, &c., at the Western Hospital, Seagrave-road, Fulham, for the Metropolitan Asylums Board. Messrs. A. & C. Harston, architects, 15, Leadenhall-street, E.C. Quantities supplied :—

B. E. Nightingale	£14,720	H. M. Patrick	£12,528
Rowe Bros.	13,200	Leslie & Co., Kensington-square, W.*	11,743
Flew & Co.	12,670		
W. Johnson & Co., Limtd.	12,547		

* Accepted.

LONDON.—For painting, distempering, and other works at the Workhouse Infirmary, Bromley-by-Bow, E., for the Guardians of Stepney. Messrs. A. & C. Harston, architects, 15, Leadenhall-street, E.C. :—

Lilley	£319	Shepherd, Commercial-road*	£258
Jaques	286		

* Accepted.

LONDON.—For the erection of a new minor hall and other alterations and additions to the West Hampstead Town-hall, for Mr. H. G. Randall. Quantities by Mr. J. W. Baily, 82, High-road, Kilburn :—

W. Sumner, West Hampstead £452 0 0

[No competition.]

LONDON.—For new offices, &c., at the Argentic Gelatino-Bromide Works, Richmond, for Messrs. Morgan & Kidd, as per amended specification :—

Chas. Eldridge, Twickenham (accepted) £643 0 0

LONDON.—For repairs, painting, &c., to Infirmary, Schools, &c., for the Guardians of Mile End Old Town, under the Superintendent of Works, Mr. C. F. Burden :—

White	£1,543	Coleman	£730
Long	950	Flaxman	695
Martin	796	Vigor	690
Littlefield	785	Lawson	630
Roby	767	Judd & Son	585
Prout	735	Crow (accepted)	576

LONDON.—For alterations to the "Rose and Crown" public-house, Mare-street, Hackney. Mr. J. Hamilton, architect :—

W. Harper	£1,300	S. Hayworth & Son	£1,269
W. Shurmur	1,296	Godfrey & Son	1,134

LONDON.—For rebuilding the "Crown" public-house, Peckham. Messrs. Wilson, Son, & Aldwinckle, architects :—

E. Harris	£5,460	E. Todd	£4,129
Staines & Son	4,400	W. Shurmur	4,020
Balaam	4,254	J. Mills	3,820

LONDON.—For alterations to the "Gardeners' Arms," Coldharbour-lane, S.E. Mr. W. M. Brutton, architect, 1, Catherine-street, Strand :—

W. E. B. Romaine & Co. (accepted) £119 10 0

LONDON.—For rebuilding the "Rose and Crown" beer-house, High-street, Lambeth, for the New London Brewery Company, Ltd. Quantities supplied. Mr. W. M. Brutton, architect, 1, Catherine-street, Strand :—

Romaine & Co.	£900	G. S. Archer, City-road, E.C.*	£789
G. Ford	875	B. Crook	765

* Accepted.

LONDON.—For alterations and additions to the "Rising Sun," Vauxhall-street, Lambeth. Mr. W. M. Brutton, architect, 1, Catherine-street, Strand :—

F. Hooper	£611	G. Ford	£558
G. S. Archer	590	W. E. B. Romaine*	500

* Accepted.

LONDON.—For block of residential flats, Oxford-street. Mr. H. H. Collins, F.R.I.B.A., and Professor Bannister Fletcher, F.R.I.B.A., joint architects :—

Whitaker	£14,644	Bentley	£13,554
Chappell	14,200	Killby & Gayford	13,500
B. E. Nightingale	13,938	W. Shurmur	13,446
Brass & Son	13,920	Williams	13,407
Patman & Fotheringham	13,890	Paramore	13,100
Lascelles & Co.	13,754	Grimwood	12,994
J. Grover & Son	13,640	Perry & Co.	12,993
Johnson & Co.	13,597	Allen & Son	12,300

LONDON.—For re-instating warehouse at Tower-hill, for the Tip-Top Tea Company. Mr. H. H. Collins, architect :—

Harris & Wardrop	£3,300	Blow	£2,780
Paramore	3,200	Mowlem & Co.	2,768
Mark	3,100	Ward & Co.	2,694
Patman & Fotheringham	2,978	Shepherd	2,585
Thompson	2,950	Grover & Co.	2,480
Outhwaite	2,900	W. Shurmur	2,367
Downs	2,841		

LONDON.—For new premises at Rosebery-avenue. Messrs. T. Chatfeild Clarke & Son, architects :—

C. Cox	£2,698	E. Toms	£2,418
Holland & Hannen	2,610	W. Shurmur	2,394
Ashby & Horner	2,594	W. Scrivener & Co.	2,392
Colls & Son	2,582	Hall, Beddall, & Co.	2,390
Woodward & Co.	2,570	Ashby Bros.	2,387
E. Lawrance & Son	2,511		

MAIDSTONE.—For sanitary alterations at Barham Court, near Maidstone, for Mr. Roger Leigh. Mr. W. D. Scott Moncrieff, engineer :—

North British Plumbing and Scientific Sanitation Company £574 0 0

[No competition.]

METHWOLD (Norfolk).—For repairs and re-seating the Wesleyan Chapel, Methwold, for the trustees. Mr. John Jas. Downes, architect, 11, The Parade, Lewisham High-road, S.E. :—

G. Mills	£319 10	G. Hawes, Norwich*	£318 10

* Accepted.

NEWCASTLE-ON-TYNE.—For extensive alterations to premises, Headlam-street, Byker, for Mr. John Richardson. Mr. Albert F. Farthing, architect and surveyor, 21, Pilgrim-street, Newcastle-on-Tyne :—

E. & T. George	£1,716 0 0	Alex. Pringle	£1,395 14 4
Edward Weatherley	1,553 1 11	Fred. Wakefield	1,337 0 0
Walter Franklin	1,492 0 0	Geo. W. Waller, Byker Bridge End, Newcastle*	1,262 14 8
James Lunn	1,460 0 0		
Robt. Veitch	1,430 0 0		

* Accepted.

NORTHWICH.—For the erection of school buildings, Marston, for the Managers of the Marston Church Schools. Mr. M. K. Fallerton, architect, High-street, Northwich. Quantities by the architect :—

Rylance & Son	£1,901	Thomas Leicester, Northwich*	£1,406
Stelfox & Carter	1,473		
James Bostock	1,441		

* Accepted.

PRINCETHORPE (Warwickshire).—Accepted for alterations and additions to the Conventual Chapel of St. Mary's Priory, Princethorpe. Mr. Joseph Stanislaus Hansom, F.R.I.B.A., architect, 27, Alfred-place West, South Kensington :—

General Building Work.

Claridge & Bloxham, Banbury £900 0 0

Stalls, Tribune, Gallery, &c.

Jones & Willis, Birmingham 900 0 0

Improvement of Organ.

Bevington & Sons, London 368 10 0

SHANGHAI.—For the construction of a Malava hard-wood bridge across the Hongkew Creek, for the Shanghai Municipal Council. (Span, 82 ft. between abutments; piles, about 30 ft.; width between railings, 30 ft.) Mr. Charles Mayne, Engineer and Surveyor :—

Dzung-Koon	£1,641 5 0	Yah-Kee & Co.	£862 2 4
Chang-le-Kee*	914 6 8		

* Accepted.

STAINCLIFFE (Yorks).—For the erection of five dwelling-houses in Hillary-street, for Mr. Philemon Asquith. Mr. Walter Crawshaw, architect, Branch-road, Batley. Quantities by the architect :—

Mason's Work—Samuel Y. North, Batley	£516 0 0
Joiner's Work—J. Richardson & Sons, Staincliffe	199 19 0
Plumber's Work—Edwin Walker, Heckmondwike	23 15 0
Plasterer's Work—Hitchingman & Haye, Heckmondwike	41 0 0
Slater's Work—Jonas M. Thornton, Heckmondwike	53 18 0
Total	£834 12 0

WANSTEAD (Essex).—For the erection of stabling at "Evergreen Lodge," Wanstead, for Mr. J. E. Cockett. Mr. Herbert Riches, architect, 59 and 60, Cornhill, London, E.C. Quantities supplied :—

J. Jolliffe	£425 0	T. Osborn & Sons	£389 10
Coulsell Bros.	394 0	W. Mundy (accepted)	378 0

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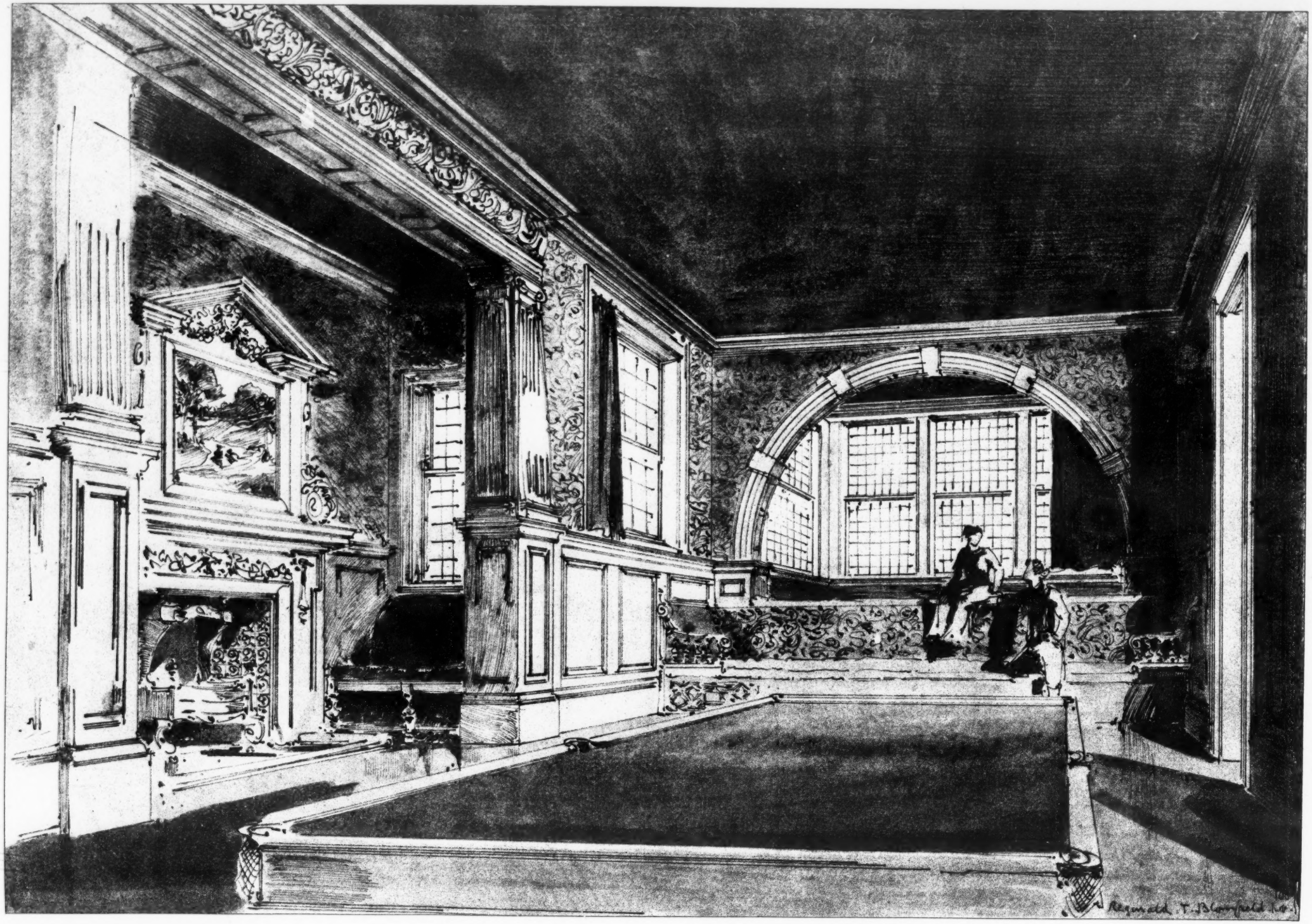

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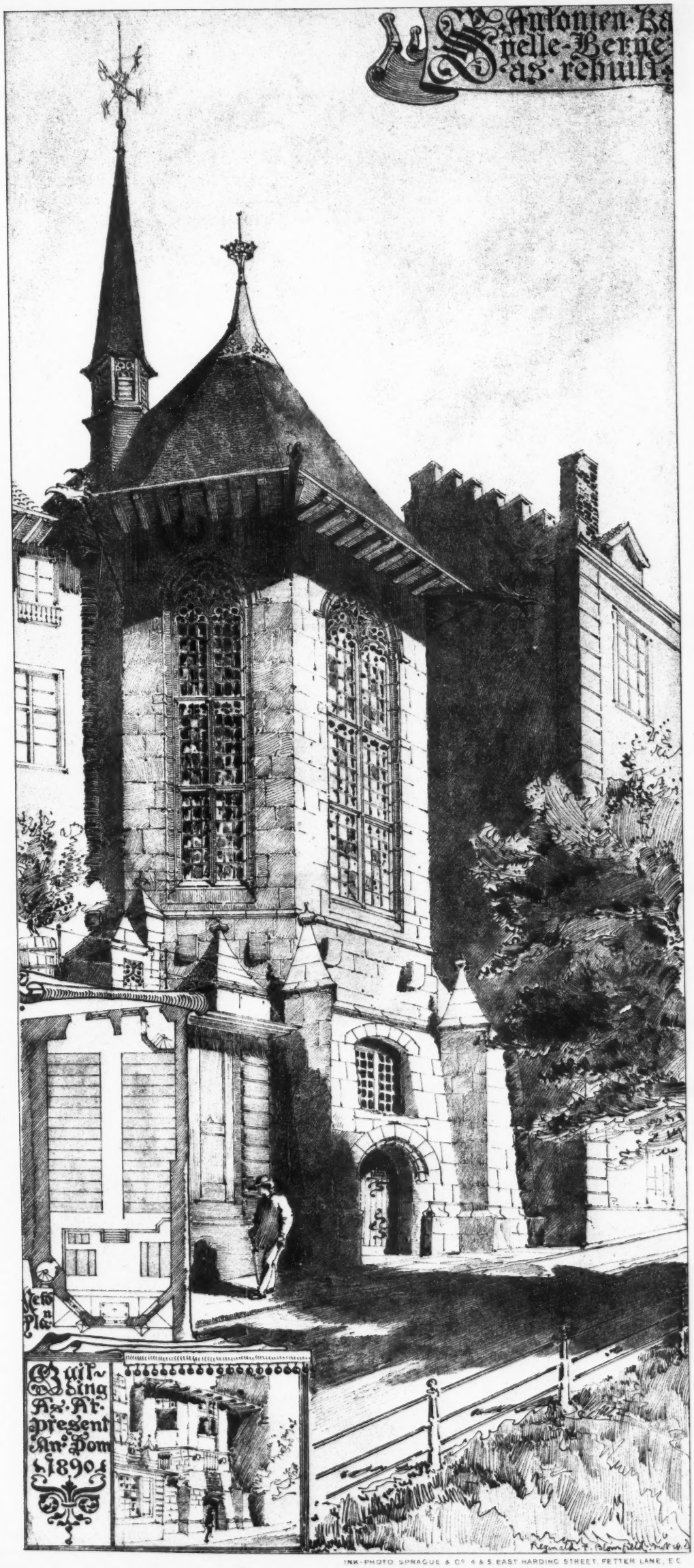

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ST. ANTONIEN KAPELLE, BERNE: AS REBUILT.—Mr. Reginald T. Blomfield, A.R.I.B.A., Architect.

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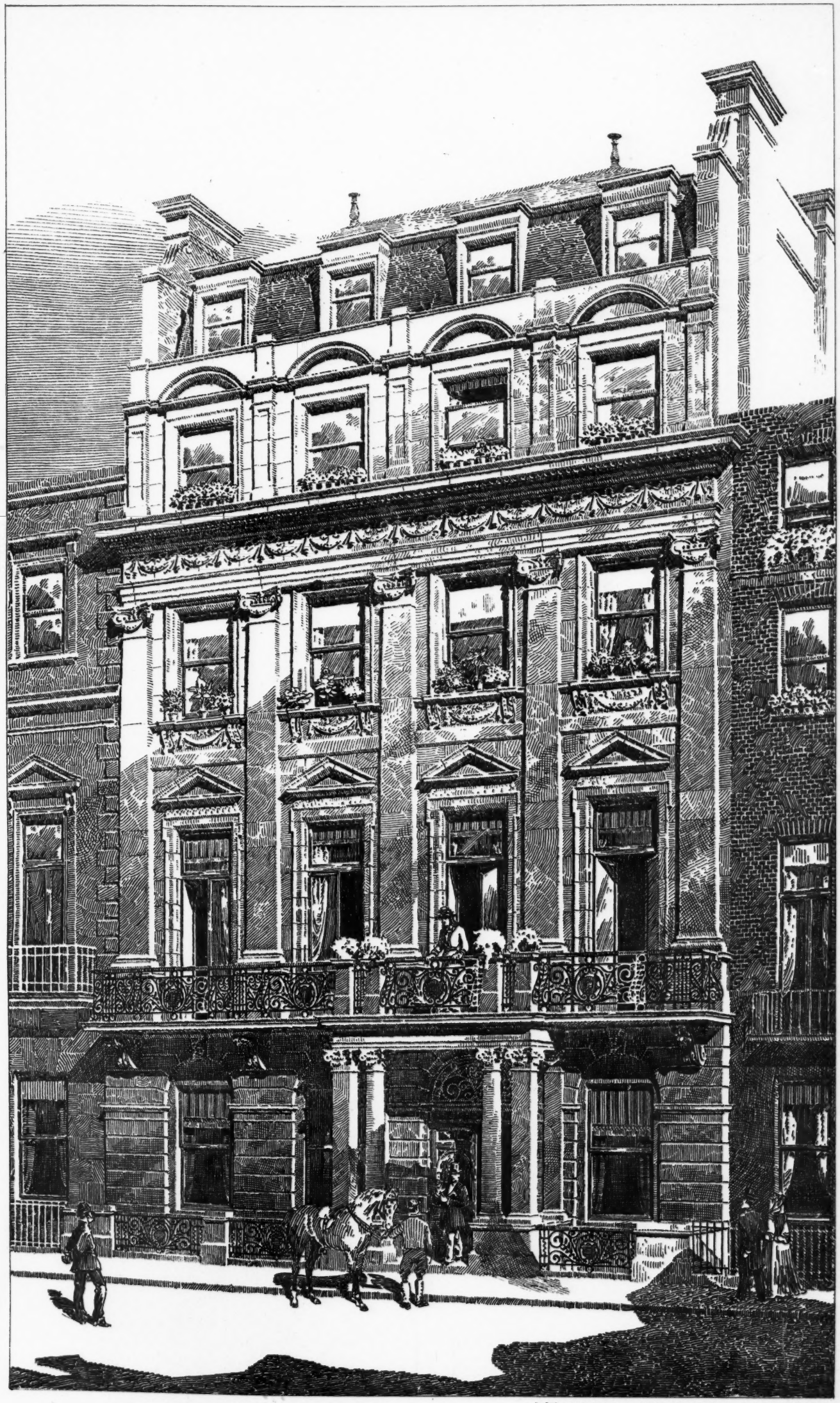

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11 CHARLES STREET, MAYFAIR.—Messrs. Wimperis & Arber, Architects.

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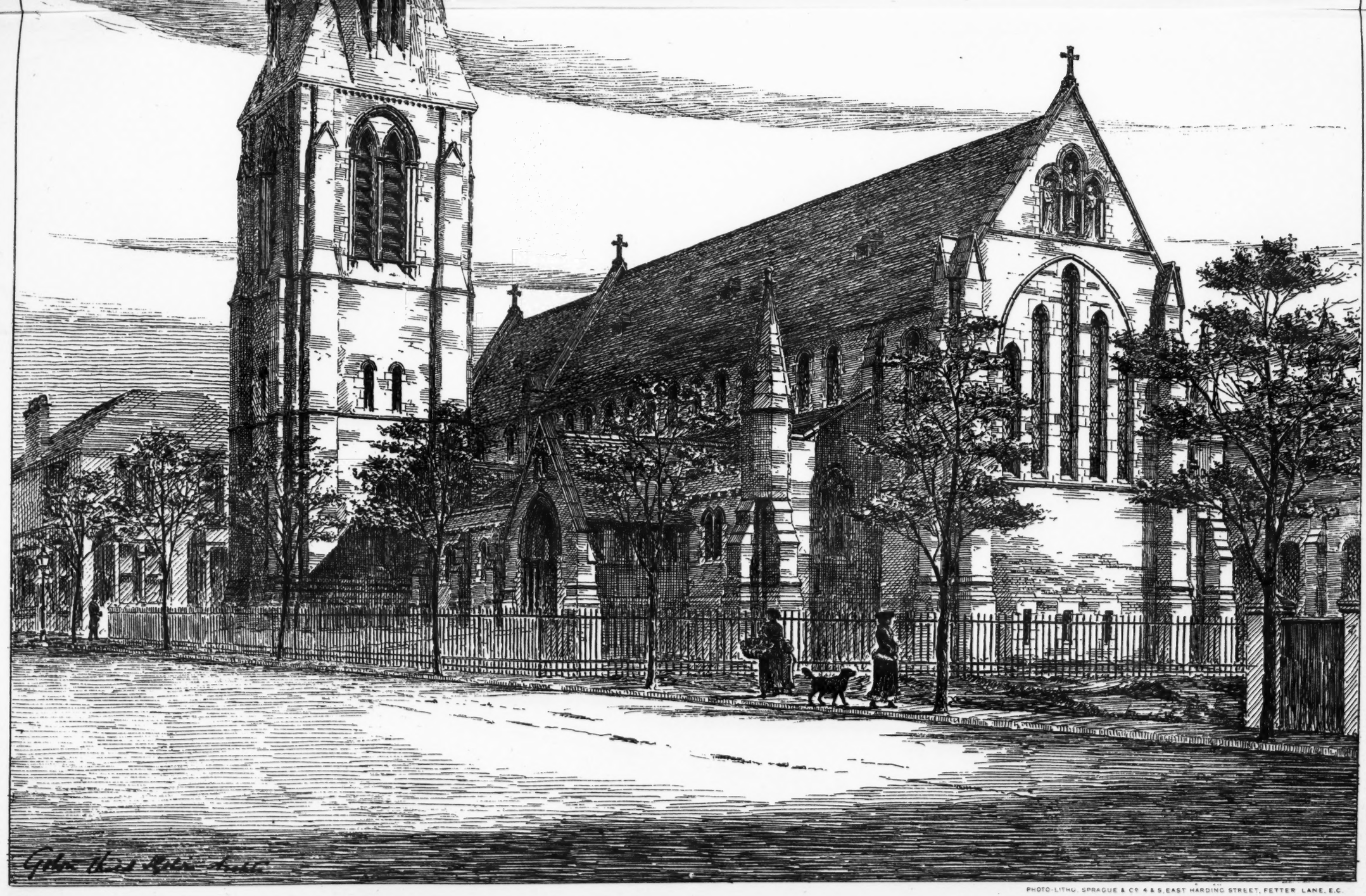

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CHURCH OF S. MICHAEL, STONEBRIDGE, WILLESDEN.—Messrs. Goldie, Child & Goldie, Architects.

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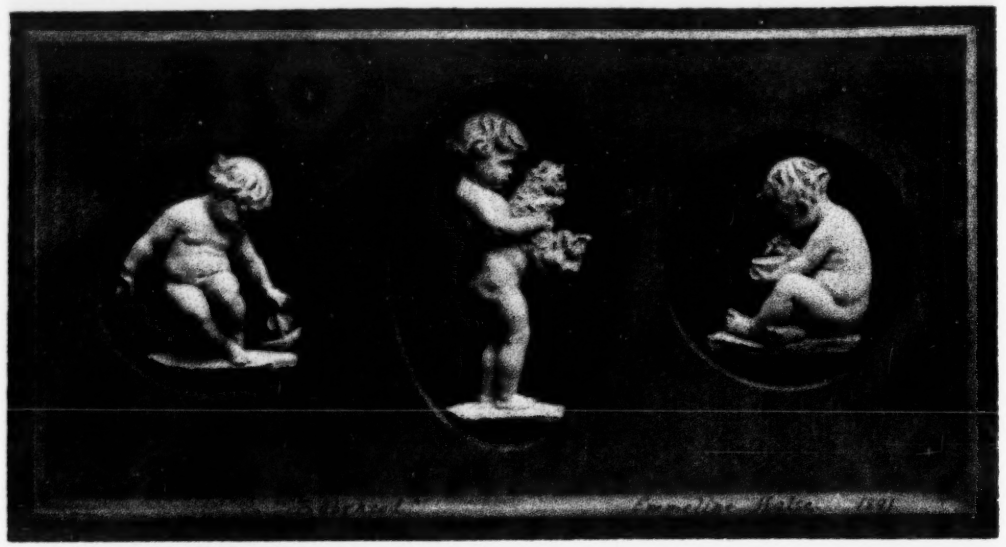

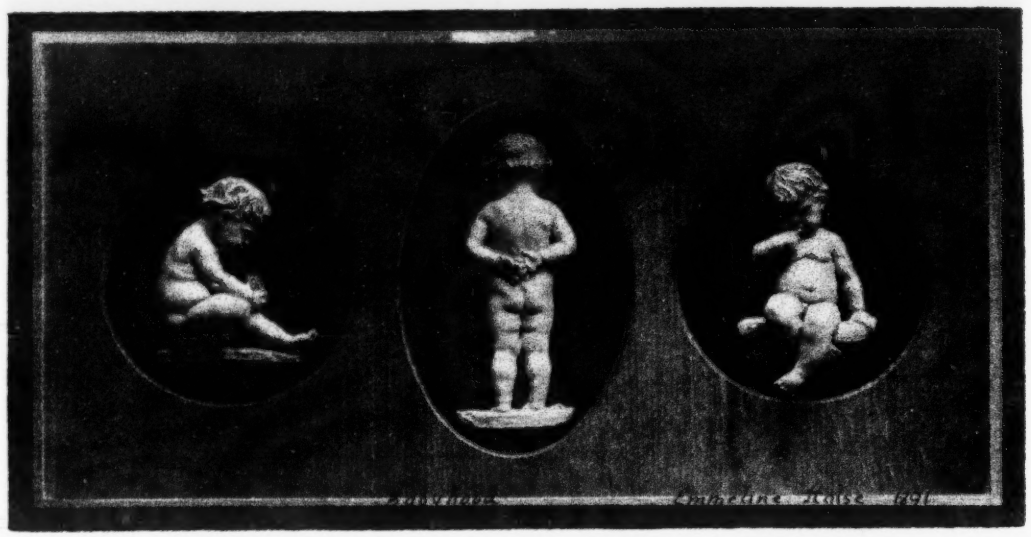

"BABYHOOD:" STUDIES IN WAX.—By Miss Emmeline Halse.

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MEDALLION: "BOY ON DOLPHIN."—By Miss Ellen M. Rope.

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"SIBYLLA FATIDICA."—By Mr. Henry A. Pegram

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